

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.05.97
Test oil : ISO 4113

Combination No. : F 002 A0Z 024

Injection pump
Pump designation : PES6A95D320/3RS2881
EP type number : 9 410 037 215

Governor
Governor design. : RSV475...1150A0C896R
Governor no. : F 002 A20 218

Cust. part No. : 3928596

Customer-spec. information

Customer : CDC
Motor : 6BTA
Power KW : 126.5

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

A01

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

°NW after s.o.d. : 8.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 13.15
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 110.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rated speed rpm : 475

Rack travel in mm : 5.80
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 22.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 3.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150

Aneroid pressure
hPa : 900

Del. quantity
cm³/1000 strokes : 110.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 106.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 12.10
Rated speed rpm : 1220
Tolerance 1/min : ± 5

rack travel mm : 6.70
Rated speed rpm : 1280
Tolerance 1/min : ± 5

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1400

rack travel mm : 6.70
Rated speed rpm : 1280
Tolerance 1/min : ± 15

LOW IDLE

control lever
position degree : 83.0
tolerance degree : ± 4.0

Control lever difference
Grad : 23.0
tolerance degree : ± 6.0

Setting point w/out bumper spring

Rated speed rpm : 475
rack travel mm : 5.30
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475
rack travel mm : 5.80
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 13.15
Tolerance mm : \pm 0.05

Rated speed rpm : 750

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 11.05
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 590
rack travel mm : 12.60
Tolerance mm : \pm 0.20

Pressure hPa : 475
rack travel mm : 12.20
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 87.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 120.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 475

Rack travel in mm : 5.80
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 30.05.97

Test oil : ISO 4113

Combination No. : F 002 A0Z 062

Injection pump

Pump designation : PES4A95D320/3RS2927

EP type number : F 002 A10 017

Governor

Governer design. : RSV475...1100A2C942R

Governer no. : F 002 A20 243

Cust. part No. : 3930142

Customer-spec. information

Customer : CDC

Motor : 4BNA3.9

Power kW : 50.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0

Tolerance bar : ± 0.1

Test nozzle holde
assembly

: 1 688 901 101

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

A04

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0

Tolerance bar : ± 1.0

Prestroke mm : 2.85

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 7.75

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 9.25

Tolerance mm : ± 0.05

Del. quantity
cm3/1000 strokes : 82.0

Tolerance
cm3/1000 strokes : \pm 1.0

Check tolerance
cm3/1000S. : \pm 3.0

Speed

Tolerance
cm3/1000 strokes : 3.5

Check tolerance
cm3/1000S. : 6.0

Rated speed rpm : 475

Rack travel in mm : 4.60
Tolerance mm : \pm 0.10

Del. quantity
cm3/1000 strokes : 13.5

Tolerance
cm3/1000 strokes : \pm 2.0

Check tolerance
cm3/1000S. : \pm 4.5

Speed

Tolerance
cm3/1000 strokes : 3.5

Check tolerance
cm3/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 3.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure
hPa : -

Del. quantity
cm3/1000 strokes : 82.0

Tolerance
cm3/1000 strokes : \pm 1.0

Check tolerance
cm3/1000S. : \pm 3.0

Speed

Tolerance
cm3/1000 strokes : 3.5

Check tolerance
cm3/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 87.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 8.20
Rated speed rpm : 1155
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1215

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1450

rack travel mm : 4.00
Rated speed rpm : 1215
Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 72.0
tolerance degree : \pm 4.0

Control lever difference
Grad : 15.0
tolerance degree : \pm 6.0

Setting point w/out bumper spring

Rated speed rpm : 475
rack travel mm : 4.10
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475
rack travel mm : 4.60
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 9.25
Tolerance mm : \pm 0.05

Rated speed rpm : 600
rack travel mm : 9.90
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 79.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 475
Rack travel in mm : 4.60
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 13.5

A06

Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 03.06.97
Test oil : ISO 4113

Combination No. : 0 402 646 739

Injection pump
Pump designation : PE6P120A320LS7904
EP type number : 0 412 626 961

Governor
Governor design. : RQ750PA1326
Governor no. : 0 421 801 815

Cust. part No. : 04222 3926 KY

Customer-spec. information
Customer : KHD
Motor : BF6M1015/C
Power KW : 239.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 033

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 250
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 300.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm	:	700
<hr/>		
Rack travel in mm	:	12.40
Tolerance mm	:	± 0.05
<hr/>		
Del. quantity cm ³ /1000 strokes	:	365.0
<hr/>		
Tolerance cm ³ /1000 strokes	:	± 1.0
<hr/>		
Check tolerance cm ³ /1000S.	:	± 4.0
<hr/>		
Spreed		
<hr/>		
Tolerance cm ³ /1000 strokes	:	5.0
<hr/>		
Check tolerance cm ³ /1000S.	:	9.0
<hr/>		

Rated speed rpm	:	300
Del. quantity cm ³ /1000 strokes	:	20.0
Tolerance cm ³ /1000 strokes	:	± 3.0
Check tolerance cm ³ /1000S.	:	± 6.0
Spreed		
Tolerance cm ³ /1000 strokes	:	8.0
Check tolerance cm ³ /1000S.	:	12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	745
guide sleeve travel mm	:	4.54
Tolerance mm	:	± 0.15
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Rated speed rpm	:	300
guide sleeve travel mm	:	1.24
Tolerance mm	:	± 0.20
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Rated speed rpm	:	860
guide sleeve travel mm	:	5.59
Tolerance mm	:	± 0.10

A08

Rated speed rpm	:	271
guide sleeve travel mm	:	1.00
Tolerance mm	:	± 0.10
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Rated speed rpm	:	560
guide sleeve travel mm	:	3.24
Tolerance mm	:	± 0.10
<hr/>		
Rated speed rpm	:	1154
guide sleeve travel mm	:	12.00
Tolerance mm	:	± 0.10
<hr/>		
Rated speed rpm	:	1230
guide sleeve travel mm	:	13.50
Tolerance mm	:	± 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	700
Aneroid pressure hPa	:	-
Del. quantity cm ³ /1000 strokes	:	365.0
Tolerance cm ³ /1000 strokes	:	± 1.0
Check tolerance cm ³ /1000S.	:	± 4.0
Spreed		
Tolerance cm ³ /1000 strokes	:	5.0
Check tolerance cm ³ /1000S.	:	9.0

CONTROL LEVER

control lever position degree	:	109.0
tolerance degree	:	± 4.0

RATED SPEED

rack travel mm	:	0.50
Tolerance mm	:	± 0.50
Rated speed rpm	:	900

ASSEMBLY GOVERNOR SETTING

Rated speed rpm	:	750
rack travel mm	:	11.40
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Rated speed rpm	:	780
Tolerance 1/min	:	± 4

rack travel mm : 4.50
 rack travel mm : 0.50
 Tolerance mm : \pm 0.50
 Rated speed rpm : 900

Rated speed rpm : 751
 rack travel mm : 11.40

Rated speed rpm : 781
 Tolerance 1/min : \pm 4
 rack travel mm : 4.50

rack travel mm : 0.50
 Tolerance mm : \pm 0.50

Rated speed rpm : 752
 rack travel mm : 11.40

Rated speed rpm : 782
 Tolerance 1/min : \pm 4
 rack travel mm : 4.50

rack travel mm : 0.50
 Tolerance mm : \pm 0.50
 Rated speed rpm : 900

Rated speed rpm : 753
 rack travel mm : 11.40

Rated speed rpm : 783
 Tolerance 1/min : \pm 4
 rack travel mm : 4.50

rack travel mm : 0.50
 Tolerance mm : \pm 0.50

Rated speed rpm : 754
 rack travel mm : 11.40

Rated speed rpm : 784
 Tolerance 1/min : \pm 4
 rack travel mm : 4.50

rack travel mm : 0.50
 Tolerance mm : \pm 0.50
 Rated speed rpm : 900

Rated speed rpm : 755
 rack travel mm : 11.40

Rated speed rpm : 785
 Tolerance 1/min : \pm 4
 rack travel mm : 4.50

rack travel mm : 0.50
 Tolerance mm : \pm 0.50

LOW IDLE

control lever
 position degree : 67.0
 tolerance degree : \pm 4.0

TORQUE CONTROL

Rated speed rpm : 700
 rack travel mm : 12.40
 Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
 Rated speed rpm : $<$ 560

Check
 speed 1/min : $>$ 80
 Check
 speed 1/min : $<$ 580

STARTING FUEL DELIVERY

Rated speed rpm : 100
 rack travel mm : 20.25
 Tolerance mm : \pm 0.75
 Del. quantity
 cm³/1000 strokes : 210.0
 Tolerance
 cm³/1000 strokes : \pm 20.0
 Check tolerance
 cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 300
 Del. quantity
 cm³/1000 strokes : 20.0
 Tolerance
 cm³/1000 strokes : \pm 3.0
 Check tolerance
 cm³/1000S. : \pm 6.0
 Speed
 Tolerance
 cm³/1000 strokes : 8.0

check tolerance
m3/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.06.97
Test oil : ISO 4113

Combination No. : 0 402 746 608

Injection pump
Pump designation : PES6P120A320RS7359
EP type number : 0 412 726 925

Governor
Governor design. : RQ275/1050PA1275
Governor no. : 0 421 801 805

Cust. part No. : CCEP 5157A 66-222

Customer-spec. information

Customer : RENAULT V.I.
Motor : MIDR062045 F/C41
Power KW : 152.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 220
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.70
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.25
Tolerance mm : ± 0.75

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : -0.95
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 11.70
Tolerance mm : \pm 0.05

BASIC SETTING

Rated speed rpm : 1050

Del. quantity
cm³/1000 strokes : 176.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : -6.00
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 30.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 5.0

Spreed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1122
guide sleeve
travel mm : 7.06
Tolerance mm : \pm 0.15

Rated speed rpm : 275
guide sleeve
travel mm : 2.44
Tolerance mm : \pm 0.20

Rated speed rpm : 1050
guide sleeve
travel mm : 6.70
Tolerance mm : \pm 0.10

Rated speed rpm : 648
guide sleeve
travel mm : 6.18
Tolerance mm : \pm 0.10

Rated speed rpm : 375
guide sleeve
travel mm : 5.00
Tolerance mm : \pm 0.10

Rated speed rpm : 450
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 1300
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

Rated speed rpm : 873
guide sleeve
travel mm : 6.52
Tolerance mm : \pm 0.10

GUIDE SLEEVE POSITION

control lever
position degree : 109
Rated speed rpm : 500

Rack travel in mm : 20.00
Tolerance mm : \pm 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 176.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 276.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : -1.00
Rated speed rpm : 1115
Tolerance 1/min : \pm 5

rack travel mm : -7.70
Rated speed rpm : 1205
Tolerance 1/min : \pm 15

rack travel mm : -11.20
Tolerance mm : \pm 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 256.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 200
CRT mm min. : $<$ -4.10

Testing:

Rated speed rpm : 275
rack travel mm : -6.00
Tolerance mm : \pm 0.10

rack travel mm : -9.60
Rated speed rpm : 375
Tolerance 1/min : \pm 20

TORQUE CONTROL

Rated speed rpm : 1050

Rated speed rpm : 600
rack travel mm : 1.10
Tolerance mm : \pm 0.10

Rated speed rpm : 800
rack travel mm : 0.80
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 1.10
Tolerance mm : \pm 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : -0.70
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 280
rack travel mm : 0.65
Tolerance mm : \pm 0.15

Pressure hPa : 160
rack travel mm : -0.15
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 195

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 215

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 195.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 151.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 155.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 275
Rack travel in mm : -6.00
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.06.97
Test oil : ISO 4113
Combination No. : F 000 409 102
Injection pump
Pump designation : PES6P120A720LS7257
: -11
EP type number : F 000 400 201
Governor
Governor design. : RQV300...950PA1242
Governor no. : 9 420 080 387
Cust. part No. : 0280743302

Customer-spec. information

Customer : MBB
Motor : OM 447LA Euro II
Power KW : 264.8

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0
Overflow valve : 1 417 413 047
Inlet press. bar : 2.3
Test nozzle holde
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : +- 1.5
Test lines : 1 680 750 075
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0
Prestroke mm : 4.70
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10
Rack travel in mm : 21.00
Firing order : 6- 2- 4- 1- 5-
: 3
Phasing : 0-60-120-180-240
: -300
Tolerance : +- 0.50
Check
tolerance °NW : +- 0.75

BASIC SETTING

Rated speed rpm : 600
Rack travel in mm : 13.30
Tolerance mm : +- 0.05
Del. quantity
cm3/1000 strokes : 277.0
Tolerance
cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000S. : +- 4.0
Speed

Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.00
Tolerance mm : \pm 0.10

Del. quantity
cm3/1000 strokes : 13.0

Tolerance
cm3/1000 strokes : \pm 3.0

Check tolerance
cm3/1000S. : \pm 6.0

Spread
Tolerance
cm3/1000 strokes : 8.0

Check tolerance
cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 700
guide sleeve
travel mm : 4.55
Tolerance mm : \pm 0.25

Rated speed rpm : 1050
guide sleeve
travel mm : 7.70
Tolerance mm : \pm 0.10

Rated speed rpm : 300
guide sleeve
travel mm : 0.75
Tolerance mm : \pm 0.25

Rated speed rpm : 500
guide sleeve
travel mm : 3.45
Tolerance mm : \pm 0.25

Rated speed rpm : 1165
guide sleeve
travel mm : 9.55
Tolerance mm : \pm 0.25

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1120

Rack travel in mm : 16.50
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
Aneroid pressure
hPa : 1300

Del. quantity
cm3/1000 strokes : 277.0

Tolerance
cm3/1000 strokes : \pm 1.0

Check tolerance
cm3/1000S. : \pm 4.0

Spread
Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 114.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 12.10
Rated speed rpm : 1025
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1135
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1230

LOW IDLE

control lever
position degree : 76.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 8.00

Testing:

Rated speed rpm : 300
rack travel mm : 5.00
Tolerance mm : \pm 0.10

Rated speed rpm : 325

TORQUE CONTROL

Rated speed rpm : 600
rack travel mm : 13.30
Tolerance mm : \pm 0.05

Rated speed rpm : 950
rack travel mm : 13.00
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 13.30
Tolerance mm : \pm 0.05

Rated speed rpm : 900
rack travel mm : 13.00
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1300
rack travel mm : 13.30
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 850
rack travel mm : 2.45
Tolerance mm : \pm 0.15

Pressure hPa : 550
rack travel mm : 0.85
Tolerance mm : \pm 0.10

Start interlock

Rated speed rpm : > 100

Rated speed rpm : < 220

Check
speed 1/min : > 80

Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1300

Rated speed rpm : 950

Del. quantity
cm³/1000 strokes : 258.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000s. : \pm 5.0

Spread
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000s. : 12.0

Aneroid pressure

hPa : 1300

Rated speed rpm : 750

Del. quantity
cm³/1000 strokes : 271.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000s. : \pm 5.0

Spread
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000s. : 12.0

Aneroid pressure

hPa : -

Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 146.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000s. : \pm 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000s. : 9.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 269.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 14.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 5.00
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.06.97

Test oil : ISO 4113

Combination No. : 0 402 076 775

Injection pump

Pump designation : PES6P100A320LS3342

EP type number : 0 412 006 710

Governor

Governer design. : RSV415...1100P8A597

Governer no. : 0 421 833 463

Cust. part No. : 1824626C91

Customer-spec. information

Customer : NAVISTAR

Motor : DT-530

Power KW : 153.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 076

Inlet press. bar : 2.8

Tolerance bar : ± 0.1

Test nozzle holde
assembly

: 1 688 901 101

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0

Tolerance bar : ± 1.0

Prestroke mm : 3.00

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.55

Tolerance mm : ± 0.05

Del. quantity

cm³/1000 strokes : 104.5

Tolerance

cm³/1000 strokes : ± 1.0

Check tolerance

cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rack travel in mm : 5.60
Tolerance mm : ± 0.10

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 4.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 104.5
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 107.5
tolerance degree : ± 6.0

RATED SPEED
rack travel mm : 10.50

A20

Rated speed rpm : 1150
Tolerance 1/min : ± 5
Check
speed 1/min : ± 10

rack travel mm : 4.00
Rated speed rpm : 1200
Tolerance 1/min : ± 5
Check
speed 1/min : ± 10

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1300

rack travel mm : 4.00
Rated speed rpm : 1205
Tolerance 1/min : ± 5
Check
speed 1/min : ± 10

LOW IDLE

control lever
position degree : 78.5
tolerance degree : ± 6.0

Setting point w/out bumper spring

Rated speed rpm : 100
CRT mm min. : > 19.00

Testing:

Rated speed rpm : 415
rack travel mm : 5.60
Tolerance mm : ± 0.10

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 11.55
Tolerance mm : ± 0.05

Rated speed rpm : 800
rack travel mm : 12.50
Tolerance mm : ± 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 800
Pressure hPa : 1200
rack travel mm : 12.55
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 800
Pressure hPa : 435
rack travel mm : 11.60
Tolerance mm : \pm 0.20

Pressure hPa : 250
rack travel mm : 10.05
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 131.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 78.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Rack travel in mm : 5.60
Tolerance mm : \pm 0.10

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.06.97
Test oil : ISO 4113

Combination No. : 0 402 076 819

Injection pump
Pump designation : PES6P120A72ORS3352
EP type number : 0 412 026 780

Governor
Governor design. : RSV425...1100P2A599
: -9
Governor no. : 0 421 833 606

Cust. part No. : RE500742

Customer-spec. information

Customer : DEERE
Motor : 6081AF001
Power KW : 187.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 457 413 010

Inlet press. bar : 2.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

A22

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery mark

°NW after s.o.d. : 8.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 14.00
Difference ° CS : 2.50

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.45
Tolerance mm : +- 0.05

Del. quantity
cm3/1000 strokes : 161.0

Tolerance
cm3/1000 strokes : +- 1.0

Check tolerance
cm3/1000S. : +- 3.0

Speed

Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 6.5

Rated speed rpm : 425

Rack travel in mm : 5.90
Tolerance mm : +- 0.10

Del. quantity
cm3/1000 strokes : 29.0

Tolerance
cm3/1000 strokes : +- 2.0

Check tolerance
cm3/1000S. : +- 4.5

Speed

Tolerance
cm3/1000 strokes : 6.0

Check tolerance
cm3/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : +- 0.20

governor spring
pre-tension
click setting x : 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1600

Del. quantity
cm3/1000 strokes : 161.0

Tolerance
cm3/1000 strokes : +- 1.0

Check tolerance
cm3/1000S. : +- 3.0

Speed

Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 97.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 11.45
Rated speed rpm : 1145

Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1205

Tolerance 1/min : +- 5

rack travel mm : 0.85
Tolerance mm : +- 0.55

Rated speed rpm : 1350

rack travel mm : 4.00
Rated speed rpm : 1215

Tolerance 1/min : +- 15

LOW IDLE

control lever
position degree : 75.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 425
rack travel mm : 5.40

Tolerance mm : +- 0.10

Rated speed rpm : 100
CRT mm min. : > 19.00
Testing:
Rated speed rpm : 425
rack travel mm : 5.90
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.45
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 12.80
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1600

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 8.80
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 960
rack travel mm : 11.70
Tolerance mm : \pm 0.20

Pressure hPa : 475
rack travel mm : 9.80
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : > 100

Check
speed 1/min : > 80

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1600
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 167.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.0

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 71.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.00
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000s. : \pm 25.0

LOW IDLE

Rated speed rpm : 425
Rack travel in mm : 5.90
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 29.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000s. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.06.97
Test oil : ISO 4113

Combination No. : F 002 A0Z 063

Injection pump
Pump designation : PES4A95D320/3RS2927
EP type number : F 002 A10 017

Governor
Governor design. : RSV475...1100A2C943R
Governor no. : F 002 A20 244

Cust. part No. : 3931397

Customer-spec. information
Customer : CDC
Motor : 4BNA3.9
Power KW : 45.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 7.75
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 8.20
Tolerance mm : ± 0.05

Del. quantity cm3/1000 strokes	:	72.5
<hr/>		
Tolerance cm3/1000 strokes	:	+ 1.0
<hr/>		
Check tolerance cm3/1000S.	:	+ 3.0
<hr/>		
Spreed		
<hr/>		
Tolerance cm3/1000 strokes	:	3.5
<hr/>		
Check tolerance cm3/1000S.	:	6.0
<hr/>		

Rated speed rpm	:	475
<hr/>		
Rack travel in mm	:	4.60
Tolerance mm	:	+ 0.10
Del. quantity cm3/1000 strokes	:	13.5
Tolerance cm3/1000 strokes	:	+ 2.0
Check tolerance cm3/1000S.	:	+ 4.5
<hr/>		
Spreed		
<hr/>		
Tolerance cm3/1000 strokes	:	3.5
Check tolerance cm3/1000S.	:	5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	:	- 3
Rated speed rpm	:	800
<hr/>		
Rack travel in mm	:	0.50
Tolerance mm	:	+ 0.20
<hr/>		
governor spring pre-tension click setting x	:	3.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	1100
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Aneroid pressure hPa	:	-
Del. quantity cm3/1000 strokes	:	72.5
Tolerance cm3/1000 strokes	:	+ 1.0
Check tolerance cm3/1000S.	:	+ 3.0
<hr/>		
Spreed		
<hr/>		
Tolerance cm3/1000 strokes	:	3.5
Check tolerance cm3/1000S.	:	6.0

CONTROL LEVER

control lever position degree	:	93.0
tolerance degree	:	+ 4.0

RATED SPEED

rack travel mm	:	7.20
Rated speed rpm	:	1155
Tolerance 1/min	:	+ 5

rack travel mm	:	4.00
Rated speed rpm	:	1190
Tolerance 1/min	:	+ 5

rack travel mm	:	0.85
Tolerance mm	:	+ 0.55
Rated speed rpm	:	1300

rack travel mm	:	4.00
Rated speed rpm	:	1190
Tolerance 1/min	:	+ 15

LOW IDLE

control lever position degree	:	71.0
tolerance degree	:	+ 4.0

Control lever difference Grad	:	22.0
tolerance degree	:	+ 6.0

Setting point w/out bumper spring

Rated speed rpm	:	475
rack travel mm	:	4.10
Tolerance mm	:	+ 0.10

Rated speed rpm	:	100
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CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475
rack travel mm : 4.60
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 8.20
Tolerance mm : \pm 0.05

Rated speed rpm : 600
rack travel mm : 9.20
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 600
Del. quantity
cm3/1000 strokes : 67.0
Tolerance
cm3/1000 strokes : \pm 2.0
Check tolerance
cm3/1000S. : \pm 5.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm3/1000 strokes : 120.0
Tolerance
cm3/1000 strokes : \pm 10.0
Check tolerance
cm3/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 475
Rack travel in mm : 4.60
Tolerance mm : \pm 0.10
Del. quantity
cm3/1000 strokes : 13.5

Tolerance
cm3/1000 strokes : \pm 2.0
Check tolerance
cm3/1000S. : \pm 4.5
Spreed
Tolerance
cm3/1000 strokes : 3.5
Check tolerance
cm3/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.06.97
Test oil : ISO 4113
Combination No. : 0 402 046 866
Injection pump
Pump designation : PES6P120A720RS3346
EP type number : 0 412 026 778
Governor
Governor design. : RQ300/1025PA1213
Governor no. : 0 421 801 783

Cust. part No. :

Customer-spec. information
Customer : IVECO-FIAT
Motor : 8360.46.4649

TEST BENCH REQUIREMENTS

Inlet line : 2.4
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 034
Inlet press. bar : 2.5
Test nozzle holder
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 089
Outside diameter : 8.0
x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1025

Rack travel in mm : 11.90
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 175.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.50
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 20.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : 97
Rated speed rpm : 550

Rack travel in mm : 14.30
Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1025
Aneroid pressure

hPa : 900

Del. quantity
cm³/1000 strokes : 175.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

RATED SPEED

B02

rack travel mm : 10.90
Rated speed rpm : 1078

Tolerance 1/min : + 8
Check

speed 1/min : + 13

rack travel mm : 4.00
Rated speed rpm : 1150

Tolerance 1/min : + 15
Check

speed 1/min : + 20

rack travel mm : 0.50
Tolerance mm : + 0.50

Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 70.0

tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : > 7.00

Testing:

Rated speed rpm : 300
rack travel mm : 5.50

Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 380

Tolerance 1/min : + 20

TORQUE CONTROL

Rated speed rpm : 1025
rack travel mm : 11.90

Tolerance mm : + 0.05

Rated speed rpm : 500
rack travel mm : 11.95

Tolerance mm : + 0.10

Rated speed rpm : 1025
rack travel mm : 12.35

Tolerance mm : + 0.05

Rated speed rpm : 500
rack travel mm : 12.40

Tolerance mm : + 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 11.90
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.60
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 270
rack travel mm : 10.00
Tolerance mm : \pm 0.20

Pressure hPa : 500
rack travel mm : 11.30
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 168.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 102.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 5.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.06.97
Test oil : ISO 4113

Combination No. : 0 402 046 872

Injection pump
Pump designation : PES6P120A320RS3337
EP type number : 0 412 026 770

Governor
Governor design. : RQV300...1250PA1246K
Governor no. : 0 421 815 480

Cust. part No. : CCEP 5155A 66-217

Customer-spec. information

Customer : RENAULT V.I.
Motor : MIDR 06-02-26 U4
Power KW : 111.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 084

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 135
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.10
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 11.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

°NW after s.o.d. : 0.08
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

betw. rack trav.
mm : 21.00
and maximum rack
travel : 11.00
Difference °CS : 2.00

CRT ZERO POSITION

Rack travel in mm : 10.60
Tolerance mm : \pm 0.05

BASIC SETTING

Rated speed rpm : 1250

Del. quantity
cm³/1000 strokes : 142.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : -5.80
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 26.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 5.0

Spreed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1333
guide sleeve
travel mm : 10.40
Tolerance mm : \pm 0.15

Rated speed rpm : 300
guide sleeve
travel mm : 1.31
Tolerance mm : \pm 0.20

Rated speed rpm : 900
guide sleeve
travel mm : 6.50
Tolerance mm : \pm 0.25

Rated speed rpm : 530
guide sleeve
travel mm : 3.77
Tolerance mm : \pm 0.25

Rated speed rpm : 1580
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1400

Rack travel in mm : 10.50
Tolerance mm : \pm 1.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 142.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 296.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : -1.00

Rated speed rpm : 1305
Tolerance 1/min : + 15

rack travel mm : -6.60
Rated speed rpm : 1400
Tolerance 1/min : + 5

rack travel mm : -10.10
Tolerance mm : + 0.50
Rated speed rpm : 1550

LOW IDLE

control lever
position degree : 242.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200
CRT mm min. : < -4.80

Testing:

Rated speed rpm : 300
rack travel mm : -5.80
Tolerance mm : + 0.10

Rated speed rpm : 380

TORQUE CONTROL

Rated speed rpm : 1250

Rated speed rpm : 750
rack travel mm : -1.65
Tolerance mm : + 0.10

Rated speed rpm : 350
rack travel mm : -2.55
Tolerance mm : + 0.20

Start interlock

Rated speed rpm : > 130
Rated speed rpm : < 245

Check
speed 1/min : > 110
Check
speed 1/min : < 255

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 102.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 108.0
Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : -5.80
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.06.97
Test oil : ISO 4113

Combination No. : 0 402 646 739

Injection pump
Pump designation : PE6P120A320LS7904-1
EP type number : 0 412 626 964

Governor
Governor design. : RQ750PA1326
Governor no. : 0 421 801 815

Cust. part No. : 04222 3926 KY

Customer-spec. information
Customer : KHD
Motor : BF6M1015/C
Power KW : 239.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 033

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 200
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 300.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm	:	700
<hr/>		
Rack travel in mm	:	12.40
Tolerance mm	:	+/- 0.05
<hr/>		
Del. quantity cm ³ /1000 strokes	:	365.0
<hr/>		
Tolerance cm ³ /1000 strokes	:	+/- 1.0
<hr/>		
Check tolerance cm ³ /1000S.	:	+/- 4.0
<hr/>		
Speed		
<hr/>		
Tolerance cm ³ /1000 strokes	:	5.0
<hr/>		
Check tolerance cm ³ /1000S.	:	9.0
<hr/>		

Rated speed rpm	:	300
Del. quantity cm ³ /1000 strokes	:	20.0
Tolerance cm ³ /1000 strokes	:	+/- 3.0
Check tolerance cm ³ /1000S.	:	+/- 6.0
Speed		
<hr/>		
Tolerance cm ³ /1000 strokes	:	8.0
Check tolerance cm ³ /1000S.	:	12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	745
guide sleeve travel mm	:	4.54
Tolerance mm	:	+/- 0.15
<hr/>		
Rated speed rpm	:	300
guide sleeve travel mm	:	1.24
Tolerance mm	:	+/- 0.20
<hr/>		
Rated speed rpm	:	860
guide sleeve travel mm	:	5.59
Tolerance mm	:	+/- 0.10

Rated speed rpm	:	271
guide sleeve travel mm	:	1.00
Tolerance mm	:	+/- 0.10
<hr/>		
Rated speed rpm	:	560
guide sleeve travel mm	:	3.24
Tolerance mm	:	+/- 0.10
<hr/>		
Rated speed rpm	:	1154
guide sleeve travel mm	:	12.00
Tolerance mm	:	+/- 0.10
<hr/>		
Rated speed rpm	:	1230
guide sleeve travel mm	:	13.50
Tolerance mm	:	+/- 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	700
Aneroid pressure hPa	:	-
Del. quantity cm ³ /1000 strokes	:	365.0
Tolerance cm ³ /1000 strokes	:	+/- 1.0
Check tolerance cm ³ /1000S.	:	+/- 4.0
Speed		
<hr/>		
Tolerance cm ³ /1000 strokes	:	5.0
Check tolerance cm ³ /1000S.	:	9.0

CONTROL LEVER

control lever position degree	:	109.0
tolerance degree	:	+/- 4.0

RATED SPEED

rack travel mm	:	0.50
Tolerance mm	:	+/- 0.50
Rated speed rpm	:	900

ASSEMBLY GOVERNOR SETTING

Rated speed rpm	:	750
rack travel mm	:	11.40
<hr/>		
Rated speed rpm	:	780
Tolerance 1/min	:	+/- 4

rack travel mm : 4.50
 rack travel mm : 0.50
 Tolerance mm : \pm 0.50
 Rated speed rpm : 900

Rated speed rpm : 751
 rack travel mm : 11.40

Rated speed rpm : 781
 Tolerance 1/min : \pm 4
 rack travel mm : 4.50

rack travel mm : 0.50
 Tolerance mm : \pm 0.50

Rated speed rpm : 752
 rack travel mm : 11.40

Rated speed rpm : 782
 Tolerance 1/min : \pm 4
 rack travel mm : 4.50

rack travel mm : 0.50
 Tolerance mm : \pm 0.50
 Rated speed rpm : 900

Rated speed rpm : 753
 rack travel mm : 11.40

Rated speed rpm : 783
 Tolerance 1/min : \pm 4
 rack travel mm : 4.50

rack travel mm : 0.50
 Tolerance mm : \pm 0.50

Rated speed rpm : 754
 rack travel mm : 11.40

Rated speed rpm : 784
 Tolerance 1/min : \pm 4
 rack travel mm : 4.50

rack travel mm : 0.50
 Tolerance mm : \pm 0.50
 Rated speed rpm : 900

Rated speed rpm : 755
 rack travel mm : 11.40

Rated speed rpm : 785
 Tolerance 1/min : \pm 4
 rack travel mm : 4.50

rack travel mm : 0.50
 Tolerance mm : \pm 0.50

LOW IDLE

control lever
 position degree : 62.0
 tolerance degree : \pm 4.0

TORQUE CONTROL

Rated speed rpm : 700
 rack travel mm : 12.40
 Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
 Rated speed rpm : $<$ 560

Check
 speed 1/min : $>$ 80
 Check
 speed 1/min : $<$ 580

STARTING FUEL DELIVERY

Rated speed rpm : 100
 rack travel mm : 20.25
 Tolerance mm : \pm 0.75
 Del. quantity
 cm³/1000 strokes : 210.0
 Tolerance
 cm³/1000 strokes : \pm 20.0
 Check tolerance
 cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 300
 Del. quantity
 cm³/1000 strokes : 20.0
 Tolerance
 cm³/1000 strokes : \pm 3.0
 Check tolerance
 cm³/1000S. : \pm 6.0
 Spread
 Tolerance
 cm³/1000 strokes : 8.0

Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.06.97
Test oil : ISO 4113

Combination No. : 0 402 646 785

Injection pump
Pump designation : PE6P120A320LS7869
EP type number : 0 412 626 887

Governor
Governor design. : RQV300...1050PA1078K
Governor no. : 0 421 815 359

Cust. part No. : 9275445

Customer-spec. information
Customer : LIEBHERR
Motor : D 9406 TI
Power KW : 300.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 165
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 6- 3- 5- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.30
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 291.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : +- 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.00
Tolerance mm : +- 0.10

Del. quantity
cm³/1000 strokes : 25.0

Tolerance
cm³/1000 strokes : +- 3.0

Check tolerance
cm³/1000S. : +- 6.0

Spread

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1117
guide sleeve
travel mm : 10.38
Tolerance mm : +- 0.25

Rated speed rpm : 300
guide sleeve
travel mm : 1.69
Tolerance mm : +- 0.25

Rated speed rpm : 746
guide sleeve
travel mm : 6.20
Tolerance mm : +- 0.25

Rated speed rpm : 353
guide sleeve
travel mm : 2.45
Tolerance mm : +- 0.25

Rated speed rpm : 403
guide sleeve
travel mm : 3.18
Tolerance mm : +- 0.25

Rated speed rpm : 450
guide sleeve
travel mm : 3.66
Tolerance mm : +- 0.25

Rated speed rpm : 1320
guide sleeve
travel mm : 13.50
Tolerance mm : +- 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1185

Rack travel in mm : 10.80
Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1550
Del. quantity
cm³/1000 strokes : 291.0
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 121.0
tolerance degree : +- 4.0

RATED SPEED
rack travel mm : 11.30
Rated speed rpm : 1110
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1200
Tolerance 1/min : +- 15

rack travel mm : 0.50
Tolerance mm : +- 0.50
Rated speed rpm : 1300

Tolerance 1/min : + 15

LOW IDLE

control lever
position degree : 70.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200
CRT mm min. : > 6.50

Testing:

Rated speed rpm : 300
rack travel mm : 5.00
Tolerance mm : + 0.10

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.30
Tolerance mm : + 0.05

Rated speed rpm : 500
rack travel mm : 10.10
Tolerance mm : + 0.10

Rated speed rpm : 800
rack travel mm : 11.60
Tolerance mm : + 0.10

Rated speed rpm : 950
rack travel mm : 12.20
Tolerance mm : + 0.10

Rated speed rpm : 600
rack travel mm : 10.20
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1050
Pressure hPa : 1550
rack travel mm : 12.30
Tolerance mm : + 0.05

Rated speed rpm : 1050
Pressure hPa : -
rack travel mm : 9.10
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 1050

Pressure hPa : 670
rack travel mm : 11.00
Tolerance mm : + 0.05

Pressure hPa : 600
rack travel mm : 10.50
Tolerance mm : + 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1550
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 288.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : 1550
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 301.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 245.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Set starting CRT at K-cam.

Rated speed rpm : 100
rack travel mm : 9.90
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 185.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 5.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.06.97
Test oil : ISO 4113

Combination No. : 0 402 646 785A

Injection pump
Pump designation : PE6P120A320LS7869
EP type number : 0 412 626 887

Governor
Governor design. : RQV300...1050PA1078K
Governor no. : 0 421 815 359

Cust. part No. : 9275445

Customer-spec. information
Customer : LIEBHERR
Motor : D 9406 TI
Power KW : 300.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 165
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 6- 3- 5- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.30
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 291.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm3/1000S. : +- 4.0

Spread

Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.00

Tolerance mm : +- 0.10

Del. quantity
cm3/1000 strokes : 25.0

Tolerance
cm3/1000 strokes : +- 3.0

Check tolerance
cm3/1000S. : +- 6.0

Spread

Tolerance
cm3/1000 strokes : 6.0

Check tolerance
cm3/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1117
guide sleeve
travel mm : 10.38
Tolerance mm : +- 0.25

Rated speed rpm : 300
guide sleeve
travel mm : 1.69
Tolerance mm : +- 0.25

Rated speed rpm : 746
guide sleeve
travel mm : 6.20
Tolerance mm : +- 0.25

Rated speed rpm : 353
guide sleeve
travel mm : 2.45
Tolerance mm : +- 0.25

Rated speed rpm : 403
guide sleeve
travel mm : 3.18
Tolerance mm : +- 0.25

Rated speed rpm : 450
guide sleeve
travel mm : 3.66
Tolerance mm : +- 0.25

Rated speed rpm : 1320
guide sleeve
travel mm : 13.50
Tolerance mm : +- 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1185

Rack travel in mm : 11.00
Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1550
Del. quantity
cm3/1000 strokes : 291.0
Tolerance
cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000S. : +- 4.0
Spread
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 121.0
tolerance degree : +- 4.0

RATED SPEED
rack travel mm : 11.00
Rated speed rpm : 1105
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1200
Tolerance 1/min : +- 15

rack travel mm : 0.50
Tolerance mm : +- 0.50
Rated speed rpm : 1300

Tolerance 1/min : +- 15

LOW IDLE

control lever
position degree : 70.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 200
CRT mm min. : > 6.50

Testing:

Rated speed rpm : 300
rack travel mm : 5.00
Tolerance mm : +- 0.10

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.30
Tolerance mm : +- 0.05

Rated speed rpm : 500
rack travel mm : 10.10
Tolerance mm : +- 0.10

Rated speed rpm : 800
rack travel mm : 11.60
Tolerance mm : +- 0.10

Rated speed rpm : 950
rack travel mm : 12.20
Tolerance mm : +- 0.10

Rated speed rpm : 600
rack travel mm : 10.20
Tolerance mm : +- 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1050
Pressure hPa : 1550
rack travel mm : 12.30
Tolerance mm : +- 0.05

Rated speed rpm : 550
Pressure hPa : -
rack travel mm : 9.10
Tolerance mm : +- 0.20

MEASUREMENT

Rated speed rpm : 1050

Pressure hPa : 670
rack travel mm : 11.00
Tolerance mm : +- 0.05

Pressure hPa : 600
rack travel mm : 10.50
Tolerance mm : +- 0.20

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1550
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 288.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000s. : +- 6.0

Aneroid pressure
hPa : 1550
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 301.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000s. : +- 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 245.0

Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Set starting CRT at K-cam.

Rated speed rpm : 100
rack travel mm : 9.90
Tolerance mm : +- 0.20
Del. quantity
cm³/1000 strokes : 185.0
Tolerance
cm³/1000 strokes : +- 10.0
Check tolerance
cm³/1000S. : +- 14.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 5.00
Tolerance mm : +- 0.10
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.06.97
Test oil : ISO 4113

Combination No. : 0 402 648 702

Injection pump
Pump designation : PE8P120A32QLS7875
EP type number : 0 412 628 881

Governor
Governor design. : RQV250...1150PA1346
Governor no. : 0 421 814 193

Cust. part No. :

Customer-spec. information
Customer : DHI
Motor : DV15T
Power KW : 265.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 125
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 16.00
Tolerance mm : ± 1.50

Firing order : 8- 7- 2- 6- 3
: - 5- 4- 1

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 13.80
Tolerance mm : ± 0.05

Del. quantity cm ³ /1000 strokes	: 222.0
Tolerance cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000S.	: ± 4.0
Spread	
Tolerance cm ³ /1000 strokes	: 7.0
Check tolerance cm ³ /1000S.	: 10.0

Rated speed rpm	: 250
Rack travel in mm	: 5.60
Tolerance mm	: ± 0.10
Del. quantity cm ³ /1000 strokes	: 20.0
Tolerance cm ³ /1000 strokes	: ± 3.0
Check tolerance cm ³ /1000S.	: ± 6.0
Spread	
Tolerance cm ³ /1000 strokes	: 5.0
Check tolerance cm ³ /1000S.	: 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1207
guide sleeve travel mm	: 8.92
Tolerance mm	: ± 0.15
Rated speed rpm	: 250
guide sleeve travel mm	: 1.31
Tolerance mm	: ± 0.20
Rated speed rpm	: 1185
guide sleeve travel mm	: 8.60
Tolerance mm	: ± 0.25
Rated speed rpm	: 640

guide sleeve travel mm	: 4.65
Tolerance mm	: ± 0.25
Rated speed rpm	: 1390
guide sleeve travel mm	: 11.50
Tolerance mm	: ± 0.50

GUIDE SLEEVE POSITION

control lever position degree	: - 1
Rated speed rpm	: 1227
Rack travel in mm	: 12.80
Tolerance mm	: ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1150
Aneroid pressure hPa	: -
Del. quantity cm ³ /1000 strokes	: 222.0
Tolerance cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000S.	: ± 4.0
Spread	
Tolerance cm ³ /1000 strokes	: 7.0
Check tolerance cm ³ /1000S.	: 10.0

CONTROL LEVER

control lever position degree	: 58.0
tolerance degree	: ± 4.0
control lever position degree	: 122.0
tolerance degree	: ± 4.0
RATED SPEED	
rack travel mm	: 12.80
Rated speed rpm	: 1195
Tolerance 1/min	: ± 5
rack travel mm	: 4.00
Rated speed rpm	: 1295
Tolerance 1/min	: ± 15
rack travel mm	: 0.50

Tolerance mm : \pm 0.50
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 85.0
tolerance degree : \pm 4.0

control lever
position degree : 21.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 150

CRT mm min. : $>$ 7.30

Testing:

Rated speed rpm : 250
rack travel mm : 5.60
Tolerance mm : \pm 0.10

Rated speed rpm : 300

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 13.80
Tolerance mm : \pm 0.05

Rated speed rpm : 650
rack travel mm : 13.80
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 13.80
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 8.10
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 350
rack travel mm : 10.00
Tolerance mm : \pm 0.20

Pressure hPa : 735
rack travel mm : 12.10
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 165
Rated speed rpm : $<$ 190

Check
speed 1/min : $>$ 155
Check
speed 1/min : $<$ 210

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 241.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 123.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 193.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000s. : \pm 24.0

LOW IDLE

Rated speed rpm : 250

Rack travel in mm : 5.60
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.06.97
Test oil : ISO 4113

Combination No. : 0 402 648 703

Injection pump
Pump designation : PE8P120A3Z0LS7880
EP type number : 0 412 628 889

Governor
Governor design. : RQV350...1050PA1352
Governor no. : 0 421 814 197

Cust. part No. : 0270747202

Customer-spec. information
Customer : MB-NFZ
Motor : OM442 LA euromot
Power KW : 405.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 077

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.75
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3
: - 5- 4- 1

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 15.00
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 282.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.70
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Spread

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1110
guide sleeve
travel mm : 8.10
Tolerance mm : \pm 0.15

Rated speed rpm : 350
guide sleeve
travel mm : 1.48
Tolerance mm : \pm 0.20

Rated speed rpm : 900
guide sleeve
travel mm : 5.69
Tolerance mm : \pm 0.25

Rated speed rpm : 580
guide sleeve
travel mm : 3.62
Tolerance mm : \pm 0.25

Rated speed rpm : 1204
guide sleeve
travel mm : 10.00
Tolerance mm : \pm 0.25

Rated speed rpm : 1300
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1154

Rack travel in mm : 14.00
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1300
Del. quantity
cm³/1000 strokes : 282.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spread
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 119.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 14.00
Rated speed rpm : 1098
Tolerance 1/min : \pm 8

rack travel mm : 4.00
Rated speed rpm : 1180

Tolerance 1/min : +- 15
rack travel mm : 0.75
Tolerance mm : +- 0.75
Rated speed rpm : 1250

LOW IDLE

control lever
position degree : 67.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 250
CRT mm min. : > 7.50

Testing:

Rated speed rpm : 350
rack travel mm : 5.70
Tolerance mm : +- 0.10

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 15.00
Tolerance mm : +- 0.05

Rated speed rpm : 600
rack travel mm : 15.00
Tolerance mm : +- 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : -

MEASUREMENT

Pressure hPa : 500
rack travel mm : 1.40
Tolerance mm : +- 0.05

Pressure hPa : 1000
rack travel mm : 6.00
Tolerance mm : +- 0.20

Start interlock

Rated speed rpm : > 210
Rated speed rpm : < 270

Check
speed 1/min : > 190
Check
speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1300
Rated speed rpm : 600
Del. quantity
cm3/1000 strokes : 298.5
Tolerance
cm3/1000 strokes : +- 2.0
Check tolerance
cm3/1000S. : +- 5.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 132.0
Tolerance
cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000S. : +- 4.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

REDUCED QUANTITY

Aneroid pressure
hPa : 1300
Rated speed rpm : 1050
Del. quantity
cm3/1000 strokes : 225.0
Tolerance
cm3/1000 strokes : +- 2.0
Check tolerance
cm3/1000S. : +- 5.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm3/1000 strokes : 280.0
Tolerance
cm3/1000 strokes : \pm 10.0
Check tolerance
cm3/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 5.70
Tolerance mm : \pm 0.10
Del. quantity
cm3/1000 strokes : 19.0
Tolerance
cm3/1000 strokes : \pm 3.0
Check tolerance
cm3/1000S. : \pm 6.0
Speed
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.06.97
Test oil : ISO 4113

Combination No. : 0 402 648 704

Injection pump
Pump designation : PE8P120A320LS7899
EP type number : 0 412 628 916

Governor
Governor design. : RQV350...1050PA1353
Governor no. : 0 421 814 198

Cust. part No. : 0270742502

Customer-spec. information

Customer : MB-NFZ
Motor : OM442 LA euromot
Power KW : 405.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 077

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 90
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.75
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3
: - 5- 4- 1

Phasing : 0-45-90-135-180
: -225-270-315

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 15.00
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 282.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.70
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Spread

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1110
guide sleeve
travel mm : 8.10
Tolerance mm : \pm 0.15

Rated speed rpm : 350
guide sleeve
travel mm : 1.48
Tolerance mm : \pm 0.20

Rated speed rpm : 900
guide sleeve
travel mm : 5.69
Tolerance mm : \pm 0.25

Rated speed rpm : 580
guide sleeve
travel mm : 3.62
Tolerance mm : \pm 0.25

Rated speed rpm : 1204
guide sleeve
travel mm : 10.00
Tolerance mm : \pm 0.25

Rated speed rpm : 1300
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1154

Rack travel in mm : 14.00
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1300
Del. quantity
cm³/1000 strokes : 282.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spread
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 119.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 14.00
Rated speed rpm : 1098
Tolerance 1/min : \pm 8

rack travel mm : 4.00
Rated speed rpm : 1180

Tolerance 1/min : + 15
 rack travel mm : 0.75
 Tolerance mm : + 0.75
 Rated speed rpm : 1250

LOW IDLE

control lever
 position degree : 67.0
 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 250
 CRT mm min. : > 7.50

Testing:

Rated speed rpm : 350
 rack travel mm : 5.70
 Tolerance mm : + 0.10
 Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1050
 rack travel mm : 15.00
 Tolerance mm : + 0.05

Rated speed rpm : 600
 rack travel mm : 15.00
 Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
 Pressure hPa : -

MEASUREMENT

Pressure hPa : 500
 rack travel mm : 1.40
 Tolerance mm : + 0.05

Pressure hPa : 1000
 rack travel mm : 6.00
 Tolerance mm : + 0.20

Start interlock

Rated speed rpm : > 210
 Rated speed rpm : < 270

Check
 speed 1/min : > 190
 Check
 speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : 1300
 Rated speed rpm : 600
 Del. quantity
 cm3/1000 strokes : 300.0
 Tolerance
 cm3/1000 strokes : + 3.0
 Check tolerance
 cm3/1000S. : + 6.0
 Spreed
 Tolerance
 cm3/1000 strokes : 8.0
 Check tolerance
 cm3/1000S. : 12.0

Aneroid pressure
 hPa : -
 Rated speed rpm : 500
 Del. quantity
 cm3/1000 strokes : 132.0
 Tolerance
 cm3/1000 strokes : + 1.0
 Check tolerance
 cm3/1000S. : + 4.0
 Spreed
 Tolerance
 cm3/1000 strokes : 8.0
 Check tolerance
 cm3/1000S. : 12.0

REDUCED QUANTITY

Aneroid pressure
 hPa : 1300
 Rated speed rpm : 1050
 Del. quantity
 cm3/1000 strokes : 225.0
 Tolerance
 cm3/1000 strokes : + 2.0
 Check tolerance
 cm3/1000S. : + 5.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm3/1000 strokes : 280.0
Tolerance
cm3/1000 strokes : \pm 10.0
Check tolerance
cm3/1000s. : \pm 14.0

LOW IDLE

Rated speed rpm : 350
Rack travel in mm : 5.70
Tolerance mm : \pm 0.10
Del. quantity
cm3/1000 strokes : 19.0
Tolerance
cm3/1000 strokes : \pm 3.0
Check tolerance
cm3/1000s. : \pm 6.0
Speed
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000s. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 03.06.97
Test oil : ISO 4113

Combination No. : 0 402 676 839

Injection pump
Pump designation : PE6P120A320LS7898
EP type number : 0 412 626 957

Governor
Governor design. : RSV350...850POA683
Governor no. : 0 421 833 602

Cust. part No. : 0280743102

Customer-spec. information
Customer : MB-NFZ
Motor : OM441 A
Power KW : 165.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 130
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 12.70
Tolerance mm : +- 0.05

Del. quantity
cm3/1000 strokes : 191.0

Tolerance
cm3/1000 strokes : +- 1.0

Check tolerance
cm3/1000S. : +- 4.0

Speed

Tolerance
cm3/1000 strokes : 6.0

Check tolerance
cm3/1000S. : 10.0

Rated speed rpm : 350

Rack travel in mm : 5.10
Tolerance mm : +- 0.10

Del. quantity
cm3/1000 strokes : 19.0

Tolerance
cm3/1000 strokes : +- 3.0

Check tolerance
cm3/1000S. : +- 6.0

Speed

Tolerance
cm3/1000 strokes : 8.0

Check tolerance
cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : +- 0.20

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850

Aneroid pressure
hPa : 1000

Del. quantity
cm3/1000 strokes : 191.0

Tolerance
cm3/1000 strokes : +- 1.0

Check tolerance
cm3/1000S. : +- 4.0

Speed

Tolerance
cm3/1000 strokes : 6.0

Check tolerance
cm3/1000S. : 10.0

CONTROL LEVER

control lever

position degree : 87.0

tolerance degree : +- 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 875
rack travel mm : 11.70

Rated speed rpm : 940
Tolerance 1/min : +- 4

rack travel mm : 4.00

rack travel mm : 0.85

Tolerance mm : +- 0.55

Rated speed rpm : 1300

Rated speed rpm : 876
rack travel mm : 11.70

Rated speed rpm : 941
Tolerance 1/min : +- 4

rack travel mm : 4.00

rack travel mm : 0.85

Tolerance mm : +- 0.55

Rated speed rpm : 1300

Rated speed rpm : 877
rack travel mm : 11.70

Rated speed rpm : 942
Tolerance 1/min : +- 4

rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 878
rack travel mm : 11.70

Rated speed rpm : 943
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 879
rack travel mm : 11.70

Rated speed rpm : 944
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 880
rack travel mm : 11.70

Rated speed rpm : 945
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 71.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : $>$ 19.00

Testing:

Rated speed rpm : 350
rack travel mm : 5.10
Tolerance mm : \pm 0.10

C05

rack travel mm : 2.00
Rated speed rpm : 415

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 850
rack travel mm : 12.70
Tolerance mm : \pm 0.05

Rated speed rpm : 600
rack travel mm : 12.70
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 12.70
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 11.00
Tolerance mm : \pm 0.15

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : -

Pressure hPa : 450
rack travel mm : 11.90
Tolerance mm : \pm 0.15

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 193.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spread

Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 14.50
Del. quantity
cm³/1000 strokes : 190.0
Tolerance
cm³/1000 strokes : +- 10.0
Check tolerance
cm³/1000S. : +- 14.0

LOW IDLE

Rated speed rpm : 350
Rack travel in mm : 5.10
Tolerance mm : +- 0.10
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.04.97
Test oil : ISO 4113

Combination No. : 0 402 698 033F4

Injection pump
Pump designation : PE8H120/320LS15
EP type number : 0 412 628 003

Governor
Governor design. : RE36 (FD 66322 - FD 76319)
Governor no. : 0 421 890 369

Cust. part No. : 0250745602

Customer-spec. information
Customer : MB-NFZ
Motor : OM 442 LA

TEST BENCH REQUIREMENTS

Inlet line : 3.2 ELAB

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 7.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3
 : - 5- 4- 1

Phasing : 0-45-90-135-180
 : -225-270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 8

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

C08

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 2.800
Prestroke solenoid
Stroke mm : 7.40
Del. quantity
cm³/1000 strokes : 342.0
Tolerance
cm³/1000 strokes : +/- 2.0
Check tolerance
cm³/1000S. : +/- 6.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
Uact V : 2.900
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm³/1000 strokes : 329.0
Tolerance
cm³/1000 strokes : +/- 3.0
Check tolerance
cm³/1000S. : +/- 6.0

Rated speed rpm : 550
Uact V : 2.700
Prestroke solenoid
Stroke mm : 9.50

Del. quantity
cm3/1000 strokes : 349.0
Tolerance
cm3/1000 strokes : +- 3.0
Check tolerance
cm3/1000S. : +- 6.0

Rated speed rpm : 630
Uact V : 2.000
Prestroke solenoid
Stroke mm : 5.30
Del. quantity
cm3/1000 strokes : 203.0
Tolerance
cm3/1000 strokes : +- 2.5
Check tolerance
cm3/1000S. : +- 5.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : +- 0.060
Check tolerance
Volt : +- 0.060
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm3/1000 strokes : 31.0
Tolerance
cm3/1000 strokes : +- 3.0
Speed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 1.900
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm3/1000 strokes : 108.0
Tolerance
cm3/1000 strokes : +- 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.06.97
Test oil : ISO 4113

Combination No. : 0 402 746 603

Injection pump
Pump designation : PES6P120A320RS7359
EP type number : 0 412 726 925

Governor
Governor design. : RQ300/1050PA999-7
Governor no. : 0 421 801 799

Cust. part No. : CCEP 5153 66-224

Customer-spec. information
Customer : RENAULT V.I.
Motor : MIHR062045 A41
Power KW : 188.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.70
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.25
Tolerance mm : ± 0.75

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : -0.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 12.40
Tolerance mm : ± 0.05

BASIC SETTING

Rated speed rpm	:	600
Tolerance mm	:	± 0.05
Del. quantity cm ³ /1000 strokes	:	197.0
Tolerance cm ³ /1000 strokes	:	± 1.0
Check tolerance cm ³ /1000s.	:	± 4.0
Spreed		
Tolerance cm ³ /1000 strokes	:	5.0
Check tolerance cm ³ /1000s.	:	9.0

Rated speed rpm	:	275
Rack travel in mm	:	-6.70
Tolerance mm	:	± 0.10
Del. quantity cm ³ /1000 strokes	:	36.0
Tolerance cm ³ /1000 strokes	:	± 2.0
Check tolerance cm ³ /1000s.	:	± 5.0
Spreed		
Tolerance cm ³ /1000 strokes	:	8.0
Check tolerance cm ³ /1000s.	:	12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	1145
guide sleeve travel mm	:	6.55
Tolerance mm	:	± 0.15
Rated speed rpm	:	275
guide sleeve travel mm	:	1.75
Tolerance mm	:	± 0.20
Rated speed rpm	:	1050
guide sleeve travel mm	:	6.00
Tolerance mm	:	± 0.10

Rated speed rpm	:	594
guide sleeve travel mm	:	5.11
Tolerance mm	:	± 0.10
Rated speed rpm	:	720
guide sleeve travel mm	:	6.00
Tolerance mm	:	± 0.10
Rated speed rpm	:	1380
guide sleeve travel mm	:	11.50
Tolerance mm	:	± 0.50

GUIDE SLEEVE POSITION

control lever position degree	:	109
Rated speed rpm	:	800
Rack travel in mm	:	20.00
Tolerance mm	:	± 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	600
Aneroid pressure hPa	:	1000
Del. quantity cm ³ /1000 strokes	:	197.0
Tolerance cm ³ /1000 strokes	:	± 1.0
Check tolerance cm ³ /1000s.	:	± 4.0
Spreed		
Tolerance cm ³ /1000 strokes	:	5.0
Check tolerance cm ³ /1000s.	:	9.0

CONTROL LEVER

control lever position degree	:	276.0
tolerance degree	:	± 4.0
RATED SPEED		
rack travel mm	:	-1.00
Rated speed rpm	:	1130
Tolerance 1/min	:	± 15
rack travel mm	:	-8.40
Rated speed rpm	:	1260

Tolerance 1/min : +- 5
rack travel mm : -11.90
Tolerance mm : +- 0.50
Rated speed rpm : 1375

LOW IDLE

control lever
position degree : 254.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 175
CRT mm min. : < -4.80

Testing:

Rated speed rpm : 275
rack travel mm : -6.70
Tolerance mm : +- 0.10

rack travel mm : -10.40
Rated speed rpm : 465
Tolerance 1/min : +- 20

TORQUE CONTROL

Rated speed rpm : 600
Tolerance mm : +- 0.05

Rated speed rpm : 1050
Tolerance mm : +- 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : -1.75
Tolerance mm : +- 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 220

rack travel mm : -0.85
Tolerance mm : +- 0.15
Pressure hPa : 160
rack travel mm : -1.25
Tolerance mm : +- 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 195

Check
speed 1/min : > 80
Check
speed 1/min : < 215

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 198.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 153.0
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : +- 15.0
Check tolerance
cm³/1000S. : +- 19.0

LOW IDLE

Rated speed rpm : 275
Rack travel in mm : -6.70
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 36.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.06.97
Test oil : ISO 4113

Combination No. : 0 402 746 634

Injection pump
Pump designation : PES6P120A720LS7262
: -1
EP type number : 0 412 726 918

Governor
Governor design. : RQV350...950PA1348
Governor no. : 0 421 814 196

Cust. part No. : 0240746302

Customer-spec. information
Customer : MTU
Motor : 6R183-02
Power KW : 305.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : +- 0.1

Overflow quantity
min. l/h : 170
Tolerance l/h : +- 20.0

Test nozzle holde
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : +- 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0

Prestroke mm : 4.05
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10

Rack travel in mm : 20.50
Tolerance mm : +- 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300
Tolerance : +- 0.50
Check
tolerance °NW : +- 0.75

Start of delivery mark

Tolerance : +- 0.10
Check
tolerance °NW : +- 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 13.20

Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 298.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.10

Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 21.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1008

guide sleeve
travel mm : 8.39
Tolerance mm : \pm 0.15

Rated speed rpm : 350

guide sleeve
travel mm : 2.02
Tolerance mm : \pm 0.20

Rated speed rpm : 486

guide sleeve
travel mm : 3.45
Tolerance mm : \pm 0.25

Rated speed rpm : 1220

guide sleeve

travel mm : 11.50

Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1069

Rack travel in mm : 12.20

Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 950

Aneroid pressure
hPa : 1400

Del. quantity
cm³/1000 strokes : 298.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever

position degree : 119.0

tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 12.20

Rated speed rpm : 995

Tolerance 1/min : \pm 5

rack travel mm : 4.00

Rated speed rpm : 1085

Tolerance 1/min : \pm 15

rack travel mm : 0.50

Tolerance mm : \pm 0.50

Rated speed rpm : 1250

LOW IDLE

control lever
position degree : 68.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 250
CRT mm min. : $>$ 7.40

Testing:

Rated speed rpm : 350
rack travel mm : 5.10
Tolerance mm : \pm 0.10

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 950
rack travel mm : 13.20
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 13.20
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1400
rack travel mm : 13.20
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 7.80
Tolerance mm : \pm 0.15

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 400
rack travel mm : 8.85
Tolerance mm : \pm 0.05

Pressure hPa : 850
rack travel mm : 11.25
Tolerance mm : \pm 0.15

Start interlock

Rated speed rpm : $>$ 240
Rated speed rpm : $<$ 270

Check
speed 1/min : $>$ 220
Check
speed 1/min : $<$ 250

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1400
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 301.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. : 14.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 132.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. : 14.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 15.00
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 340.0
Tolerance
cm³/1000 strokes : \pm 18.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 5.10
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 21.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.06.97
Test oil : ISO 4113

Combination No. : 0 402 776 840

Injection pump
Pump designation : PESCP120A720LS7440
EP type number : 0 412 726 971

Governor
Governor design. : RSV350...750POA520
: -1
Governor no. : 0 421 833 262

Cust. part No. : 0270749602

Customer-spec. information
Customer : MB-NFZ
Motor : OM447 A
Power KW : 180.0

TEST BENCH REQUIREMENTS

Inlet Line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : +- 0.1

Overflow quantity
min. l/h : 225
Tolerance l/h : +- 20.0

Test nozzle holde
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : +- 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0

Prestroke mm : 5.00
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10

Rack travel in mm : 10.50
Tolerance mm : +- 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300
Tolerance : +- 0.50
Check
tolerance °NW : +- 0.75

Start of delivery mark

Tolerance : +- 0.50
Check
tolerance °NW : +- 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 15.00

Tolerance mm	: \pm 0.05
<hr/>	
Del. quantity cm ³ /1000 strokes	: 230.0
<hr/>	
Tolerance cm ³ /1000 strokes	: \pm 1.0
<hr/>	
Check tolerance cm ³ /1000S.	: \pm 4.0
<hr/>	
Spreed	
<hr/>	
Tolerance cm ³ /1000 strokes	: 5.0
<hr/>	
Check tolerance cm ³ /1000S.	: 9.0
<hr/>	

Rated speed rpm	: 350
<hr/>	
Rack travel in mm	: 5.30
Tolerance mm	: \pm 0.10
Del. quantity cm ³ /1000 strokes	: 17.0
Tolerance cm ³ /1000 strokes	: \pm 3.0
Check tolerance cm ³ /1000S.	: \pm 6.0
Spreed	
Tolerance cm ³ /1000 strokes	: 8.0
Check tolerance cm ³ /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	: - 3
Rated speed rpm	: 800
<hr/>	
Rack travel in mm	: 0.50
Tolerance mm	: \pm 0.20
<hr/>	
governor spring pre-tension click setting x	: 0.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 700
Aneroid pressure hPa	: -
Del. quantity cm ³ /1000 strokes	: 230.0
Tolerance cm ³ /1000 strokes	: \pm 1.0
Check tolerance cm ³ /1000S.	: \pm 4.0
Spreed	
Tolerance cm ³ /1000 strokes	: 5.0
Check tolerance cm ³ /1000S.	: 9.0

CONTROL LEVER

control lever position degree	: 77.0
tolerance degree	: \pm 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm	: 750
rack travel mm	: 14.00
<hr/>	
Rated speed rpm	: 785
Tolerance 1/min	: \pm 4
rack travel mm	: 4.00
<hr/>	
rack travel mm	: 0.85
Tolerance mm	: \pm 0.55
Rated speed rpm	: 850

Rated speed rpm	: 751
rack travel mm	: 14.00

Rated speed rpm	: 786
Tolerance 1/min	: \pm 4
rack travel mm	: 4.00

rack travel mm	: 0.85
Tolerance mm	: \pm 0.55
Rated speed rpm	: 850

Rated speed rpm	: 752
rack travel mm	: 14.00

Rated speed rpm	: 787
Tolerance 1/min	: \pm 4
rack travel mm	: 4.00

rack travel mm	: 0.85
Tolerance mm	: \pm 0.55
Rated speed rpm	: 850

Rated speed rpm : 753
rack travel mm : 14.00

Rated speed rpm : 788
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 850

Rated speed rpm : 754
rack travel mm : 14.00

Rated speed rpm : 789
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 850

Rated speed rpm : 755
rack travel mm : 14.00

Rated speed rpm : 790
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 850

LOW IDLE

control lever
position degree : 62.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 5.30
Tolerance mm : + 0.10

rack travel mm : > 2.00
Rated speed rpm : 380
Tolerance 1/min : + 30

SET IDLE AUXILIARY SPRING

Rated speed rpm : 100
rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 15.00
Tolerance mm : + 0.05

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 16.00
Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000s. : + 19.0

LOW IDLE

Rated speed rpm : 350
Rack travel in mm : 5.30
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000s. : + 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 07.11.96

Test oil : ISO 4113

Combination No. : 0 402 946 014

Injection pump

Pump designation : PES6P120A72CLS8037

EP type number : 0 412 926 024

Governor

Governer design. : RQV250...1050PA1236K

Governer no. : 0 421 815 970

Cust. part No. : 1370101

Customer-spec. information

Customer : SCANIA

Motor : DSC1202

TEST BENCH REQUIREMENTS

Inlet line : EHAB

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 2.5

Tolerance bar : ± 0.1

Overflow quantity

min. l/h : 85

Tolerance l/h : ± 10.0

Test nozzle holde

assembly : 1 688 901 104

Opening pressure

bar : 251.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.40

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 180.00

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 775

Rack travel in mm : 14.05
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 330.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 10.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 14.0

Rated speed rpm : 250

Rack travel in mm : 4.60
Tolerance mm : \pm 0.30

Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1116
guide sleeve
travel mm : 10.09
Tolerance mm : \pm 0.15

Rated speed rpm : 250
guide sleeve
travel mm : 1.79
Tolerance mm : \pm 0.20

Rated speed rpm : 644
guide sleeve
travel mm : 4.47

Tolerance mm : \pm 0.25

Rated speed rpm : 290
guide sleeve
travel mm : 2.62
Tolerance mm : \pm 0.25

Rated speed rpm : 1310
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1170

Rack travel in mm : 12.10
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 775
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 330.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 10.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 14.0

CONTROL LEVER

control lever
position degree : 63.0
tolerance degree : \pm 4.0

control lever
position degree : 121.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 12.10
Rated speed rpm : 1095
Tolerance 1/min : \pm 5
Check
speed 1/min : \pm 10

rack travel mm : 4.00
Rated speed rpm : 1180
Tolerance 1/min : \pm 15
Check
speed 1/min : \pm 20

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 75.0
tolerance degree : \pm 4.0

control lever
position degree : 17.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 150

CRT mm min. : $>$ 7.30

Testing:

Rated speed rpm : 250
rack travel mm : 4.60
Tolerance mm : \pm 0.30

Rated speed rpm : 275

TORQUE CONTROL

Rated speed rpm : 775
rack travel mm : 14.05
Tolerance mm : \pm 0.05

Rated speed rpm : 650
rack travel mm : 13.05
Tolerance mm : \pm 0.10

Rated speed rpm : 1050
rack travel mm : 13.10
Tolerance mm : \pm 0.10

Rated speed rpm : 675
rack travel mm : 13.30
Tolerance mm : \pm 0.30

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 775
Pressure hPa : 1500
rack travel mm : 14.05
Tolerance mm : \pm 0.10

Rated speed rpm : 775
Pressure hPa : -
rack travel mm : 8.50
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 775
Pressure hPa : 300
rack travel mm : 9.80
Tolerance mm : \pm 0.15

Pressure hPa : 610
rack travel mm : 11.50
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 170

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 190

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 319.0
Tolerance
cm³/1000 strokes : \pm 4.0
Check tolerance
cm³/1000S. : \pm 10.0

Aneroid pressure
hPa : 1500
Rated speed rpm : 1050

Del. quantity
cm³/1000 strokes : 272.0
Tolerance
cm³/1000 strokes : ± 4.0
Check tolerance
cm³/1000S. : ± 8.0

Aneroid pressure
hPa : 1500
Rated speed rpm : 675
Del. quantity
cm³/1000 strokes : 323.0
Tolerance
cm³/1000 strokes : ± 4.0
Check tolerance
cm³/1000S. : ± 10.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 192.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

STARTING FUEL DELIVERY

Set starting CRT at K-cam.

Rated speed rpm : 100
rack travel mm : 10.70
Tolerance mm : ± 0.50
Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : ± 20.0
Check tolerance
cm³/1000S. : ± 24.0

LOW IDLE

Rated speed rpm : 250
Rack travel in mm : 4.60
Tolerance mm : ± 0.30
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.03.97

Test oil : ISO 4113

Combination No. : 0 402 946 015

Injection pump

Pump designation : PES6P120A320RS8038

EP type number : 0 412 926 025

Governor

Governor design. : RQV250...1000PA1239

Governor no. : 0 421 814 157

Cust. part No. : 1383795

Customer-spec. information

Customer : SCANIA

Motor : DSC 913

TEST BENCH REQUIREMENTS

Inlet line : EHAB

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 2.5

Tolerance bar : ± 0.1

Overflow quantity

min. l/h : 105

Tolerance l/h : ± 20.0

Test nozzle holde

assembly : 1 688 901 104

Opening pressure

bar : 251.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.00

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 20.50

Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 12.70
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 300.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 8.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 250

Rack travel in mm : 7.50
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 40.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1057
guide sleeve
travel mm : 7.89
Tolerance mm : \pm 0.15

Rated speed rpm : 250
guide sleeve
travel mm : 1.33
Tolerance mm : \pm 0.20

Rated speed rpm : 748
guide sleeve
travel mm : 6.17
Tolerance mm : \pm 0.25

Rated speed rpm : 322
guide sleeve
travel mm : 2.58
Tolerance mm : \pm 0.25

Rated speed rpm : 372
guide sleeve
travel mm : 3.27
Tolerance mm : \pm 0.25

Rated speed rpm : 470
guide sleeve
travel mm : 4.09
Tolerance mm : \pm 0.25

Rated speed rpm : 1470
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1260

Rack travel in mm : 11.40
Tolerance mm : \pm 1.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 300.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 8.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 57.0
tolerance degree : \pm 4.0

control lever
position degree : 120.0

tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 11.70

Rated speed rpm : 1045

Tolerance 1/min : \pm 5

Check

speed 1/min : \pm 10

rack travel mm : 4.00

Rated speed rpm : 1235

Tolerance 1/min : \pm 15

Check

speed 1/min : \pm 20

rack travel mm : 0.50

Tolerance mm : \pm 0.50

Rated speed rpm : 1350

LOW IDLE

control lever

position degree : 37.0

tolerance degree : \pm 4.0

control lever

position degree : 25.0

tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 150

CRT mm min. : $>$ 9.80

Testing:

Rated speed rpm : 250

rack travel mm : 7.50

Tolerance mm : \pm 0.10

Rated speed rpm : 300

TORQUE CONTROL

Rated speed rpm : 600

rack travel mm : 12.70

Tolerance mm : \pm 0.05

Rated speed rpm : 1000

rack travel mm : 12.70

Tolerance mm : \pm 0.10

ANEROID/ALTITUDE

COMPENSATOR TEST

SETTING

Rated speed rpm : 500

Pressure hPa : 1500

rack travel mm : 12.70

Tolerance mm : \pm 0.05

Rated speed rpm : 500

Pressure hPa : -

rack travel mm : 12.80

Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 380

rack travel mm : 11.25

Tolerance mm : \pm 0.15

Pressure hPa : 750

rack travel mm : 12.15

Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $<$ 170

Rated speed rpm : $>$ 100

Check

speed 1/min : $<$ 190

Check

speed 1/min : $>$ 80

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1500

Rated speed rpm : 1000

Del. quantity

cm³/1000 strokes : 290.0

Tolerance

cm³/1000 strokes : \pm 4.0

Check tolerance

cm³/1000s. : \pm 8.0

Aneroid pressure

hPa : -

Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 6.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : ± 0.50
Del. quantity
cm³/1000 strokes : 265.0
Tolerance
cm³/1000 strokes : ± 20.0
Check tolerance
cm³/1000S. : ± 24.0

LOW IDLE

Rated speed rpm : 250
Rack travel in mm : 7.50
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.03.97
Test oil : ISO 4113

Combination No. : 0 402 946 016

Injection pump
Pump designation : PES6P120A320RS8038
EP type number : 0 412 926 025

Governor
Governor design. : RQV250...1000PA1239
: -1
Governor no. : 0 421 814 158

Cust. part No. : 1369528

Customer-spec. information
Customer : SCANIA
Motor : DSC 912

TEST BENCH REQUIREMENTS

Inlet line : EHAB

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 110
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 104

Opening pressure
bar : 251.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -360
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 12.80
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 292.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 9.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 250

Rack travel in mm : 7.50
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 40.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1057
guide sleeve
travel mm : 7.89
Tolerance mm : \pm 0.15

Rated speed rpm : 250
guide sleeve
travel mm : 1.33
Tolerance mm : \pm 0.20

Rated speed rpm : 748
guide sleeve
travel mm : 6.17
Tolerance mm : \pm 0.25

Rated speed rpm : 322
guide sleeve
travel mm : 2.58
Tolerance mm : \pm 0.25

Rated speed rpm : 372
guide sleeve
travel mm : 3.27
Tolerance mm : \pm 0.25

Rated speed rpm : 470
guide sleeve
travel mm : 4.09
Tolerance mm : \pm 0.25

Rated speed rpm : 1470
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1290

Rack travel in mm : 11.30
Tolerance mm : \pm 1.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 292.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 9.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 57.0
tolerance degree : \pm 4.0

control lever
position degree : 120.0

tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 11.80

Rated speed rpm : 1045

Tolerance 1/min : \pm 5

Check

speed 1/min : \pm 10

rack travel mm : 4.00

Rated speed rpm : 1225

Tolerance 1/min : \pm 15

Check

speed 1/min : \pm 20

rack travel mm : 0.50

Tolerance mm : \pm 0.50

Rated speed rpm : 1350

LOW IDLE

control lever

position degree : 87.0

tolerance degree : \pm 4.0

control lever

position degree : 25.0

tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 150

CRT mm min. : $>$ 9.70

Testing:

Rated speed rpm : 250

rack travel mm : 7.50

Tolerance mm : \pm 0.10

Rated speed rpm : 300

TORQUE CONTROL

Rated speed rpm : 600

rack travel mm : 12.80

Tolerance mm : \pm 0.05

Rated speed rpm : 1000

rack travel mm : 12.80

Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500

Pressure hPa : 1500

rack travel mm : 12.80

Tolerance mm : \pm 0.05

Rated speed rpm : 500

Pressure hPa : -

rack travel mm : 10.80

Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 250

rack travel mm : 11.30

Tolerance mm : \pm 0.15

Pressure hPa : 620

rack travel mm : 12.30

Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100

Rated speed rpm : $<$ 170

Check

speed 1/min : $>$ 80

Check

speed 1/min : $<$ 190

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1500

Rated speed rpm : 1000

Del. quantity

cm³/1000 strokes : 282.0

Tolerance

cm³/1000 strokes : \pm 4.0

Check tolerance

cm³/1000S. : \pm 9.0

Aneroid pressure

hPa : -

Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000s. : ± 6.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : ± 0.50
Del. quantity
cm³/1000 strokes : 260.0
Tolerance
cm³/1000 strokes : ± 20.0
Check tolerance
cm³/1000s. : ± 24.0

LOW IDLE

Rated speed rpm : 250

Rack travel in mm : 7.50
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000s. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000s. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.03.96

Test oil : ISO 4113

Combination No. : 0 402 946 017

Injection pump

Pump designation : PES6P120A72ORS8039

EP type number : 0 412 926 026

Governor

Governer design. : RQV250...950PA1243

Governer no. : 0 421 814 162

Cust. part No. : 1374808

Customer-spec. information

Customer : SCANIA

Motor : DSC 11.79

TEST BENCH REQUIREMENTS

Inlet line : EHAB

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 2.5

Tolerance bar : ± 0.1

Overflow quantity

min. l/h : 115

Tolerance l/h : ± 10.0

Test nozzle holde
assembly

: 1 688 901 104

Opening pressure
bar

: 251.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.15

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 20.50

Tolerance mm : ± 0.50

Firing order

: 1- 5- 3- 6- 2-

: 4

Phasing

: 0-60-120-180-240

: -300

Tolerance

: ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance

: ± 0.50

Check

tolerance °NW : ± 0.75

Barrel no.

: 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 11.90
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 298.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 9.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 14.0

Rated speed rpm : 250

Rack travel in mm : 5.60
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 21.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1008
guide sleeve
travel mm : 8.61
Tolerance mm : \pm 0.15

Rated speed rpm : 250
guide sleeve
travel mm : 1.33
Tolerance mm : \pm 0.20

Rated speed rpm : 732
guide sleeve
travel mm : 6.35
Tolerance mm : \pm 0.25

Rated speed rpm : 470
guide sleeve
travel mm : 4.09
Tolerance mm : \pm 0.25

Rated speed rpm : 1260
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1165

Rack travel in mm : 10.90
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 298.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 9.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 14.0

CONTROL LEVER

control lever
position degree : 55.0
tolerance degree : \pm 4.0

control lever
position degree : 119.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 10.90
Rated speed rpm : 995
Tolerance 1/min : \pm 5
Check
speed 1/min : \pm 10
rack travel mm : 4.00

Rated speed rpm : 1115
Tolerance 1/min : + 15
Check
speed 1/min : + 20

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1200

LOW IDLE

control lever
position degree : 81.0
tolerance degree : + 4.0

control lever
position degree : 17.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 150

CRT mm min. : > 8.10

Testing:

Rated speed rpm : 250
rack travel mm : 5.60
Tolerance mm : + 0.10

Rated speed rpm : 300

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 11.90
Tolerance mm : + 0.05

Rated speed rpm : 950
rack travel mm : 11.90
Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 11.90
Tolerance mm : + 0.05

Rated speed rpm : 500

D07

Pressure hPa : -
rack travel mm : 9.20
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 350
rack travel mm : 10.30
Tolerance mm : + 0.15

Pressure hPa : 600
rack travel mm : 11.40
Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 170

Check
speed 1/min : > 80
Check
speed 1/min : < 190

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 950
Del. quantity
cm3/1000 strokes : 282.0
Tolerance
cm3/1000 strokes : + 4.0
Check tolerance
cm3/1000S. : + 9.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 197.0
Tolerance
cm3/1000 strokes : + 1.0
Check tolerance
cm3/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + 0.50

Del. quantity
cm³/1000 strokes : 225.0
Tolerance
cm³/1000 strokes : +- 20.0
Check tolerance
cm³/1000S. : +- 24.0

LOW IDLE

Rated speed rpm : 250

Rack travel in mm : 5.60
Tolerance mm : +- 0.10
Del. quantity
cm³/1000 strokes : 21.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.03.97
Test oil : ISO 4113

Combination No. : 0 402 946 020

Injection pump
Pump designation : PES6P120A320RS8038
EP type number : 0 412 926 025

Governor
Governor design. : RQV250...1000PA1239
: -2
Governor no. : 0 421 814 168

Cust. part No. : 1369545

Customer-spec. information
Customer : SCANIA
Motor : DSC 9.11

TEST BENCH REQUIREMENTS

Inlet line : EHAB

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 115
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 104

Opening pressure
bar : 251.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 12.30
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 277.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 9.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 250

Rack travel in mm : 7.20
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 40.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1057
guide sleeve
travel mm : 7.89
Tolerance mm : \pm 0.15

Rated speed rpm : 250
guide sleeve
travel mm : 1.33
Tolerance mm : \pm 0.20

Rated speed rpm : 748
guide sleeve
travel mm : 6.17
Tolerance mm : \pm 0.25

Rated speed rpm : 470
guide sleeve
travel mm : 4.09
Tolerance mm : \pm 0.25

Rated speed rpm : 1470
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1310

Rack travel in mm : 11.40
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 277.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 9.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 56.0
tolerance degree : \pm 4.0

control lever
position degree : 118.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 11.30
Rated speed rpm : 1045
Tolerance 1/min : \pm 5
Check
speed 1/min : \pm 10
rack travel mm : 4.00

Rated speed rpm : 1225
Tolerance 1/min : + 15
Check
speed 1/min : + 20

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 87.0
tolerance degree : + 4.0

control lever
position degree : 24.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 150
CRT mm min. : > 9.70

Testing:

Rated speed rpm : 250
rack travel mm : 7.20
Tolerance mm : + 0.10

Rated speed rpm : 300

TORQUE CONTROL

Rated speed rpm : 600
rack travel mm : 12.30
Tolerance mm : + 0.05

Rated speed rpm : 1000
rack travel mm : 12.30
Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 12.30
Tolerance mm : + 0.05

Rated speed rpm : 500

Pressure hPa : -
rack travel mm : 10.80
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 330
rack travel mm : 11.20
Tolerance mm : + 0.15

Pressure hPa : 600
rack travel mm : 11.90
Tolerance mm : + 0.05

Start interlock

Rated speed rpm : < 170
Rated speed rpm : > 100

Check
speed 1/min : < 190
Check
speed 1/min : > 80

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 272.0
Tolerance
cm³/1000 strokes : + 4.0
Check tolerance
cm³/1000S. : + 9.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 7.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + 0.50

Del. quantity
cm³/1000 strokes : 275.0
Tolerance
cm³/1000 strokes : ± 20.0
Check tolerance
cm³/1000s. : ± 24.0

LOW IDLE

Rated speed rpm : 250

Rack travel in mm : 7.20
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000s. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000s. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.06.97
Test oil : ISO 4113
Combination No. : 0 400 866 198
Injection pump
Pump designation : PES6A100D320/3RS2763
EP type number : 0 410 806 006

Governor
Governor design. : RSV400...950A0C2238
: -4R
Governor no. : 0 420 233 331

Cust. part No. :

Customer-spec. information
Customer : CDC
Motor : 6 CT 8.3
Power KW : 145.0

TEST BENCH REQUIREMENTS

Inlet line : 2.

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 12.15
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 121.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : ± 3.5

Spread

Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 6.5

Rated speed rpm : 400

Rack travel in mm : 5.20

Tolerance mm : ± 0.10

Del. quantity

cm3/1000 strokes : 15.0

Tolerance

cm3/1000 strokes : ± 2.0

Check tolerance

cm3/1000S. : ± 4.5

Spread

Tolerance

cm3/1000 strokes : 6.0

Check tolerance

cm3/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever

position degree : - 3

Rated speed rpm : 800

Rack travel in mm : 0.50

Tolerance mm : ± 0.20

governor spring

pre-tension

click setting x : 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 950

Aneroid pressure

hPa : 900

Del. quantity

cm3/1000 strokes : 121.5

Tolerance

cm3/1000 strokes : ± 1.0

Check tolerance

cm3/1000S. : ± 3.5

Spread

Tolerance

cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 6.5

CONTROL LEVER

control lever

position degree : 96.0

tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 11.10

Rated speed rpm : 995

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 1070

Tolerance 1/min : ± 5

rack travel mm : 0.85

Tolerance mm : ± 0.55

Rated speed rpm : 1200

rack travel mm : 4.00

Rated speed rpm : 1085

Tolerance 1/min : ± 15

LOW IDLE

control lever

position degree : 79.0

tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 400

rack travel mm : 4.70

Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 400

rack travel mm : 5.20

Tolerance mm : ± 0.10

rack travel mm : 2.00

Rated speed rpm : 470

Tolerance 1/min : ± 30

TORQUE CONTROL

Rated speed rpm : 950
rack travel mm : 12.15
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 12.15
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.80
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 305
rack travel mm : 11.70
Tolerance mm : \pm 0.20

Pressure hPa : 220
rack travel mm : 11.20
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 76.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 160.0
Tolerance
cm³/1000 strokes : \pm 10.0

Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 400

Rack travel in mm : 5.20
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 15.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.06.97
Test oil : ISO 4113
Combination No. : 0 400 866 236
Injection pump
Pump designation : PES6A100D320/3RS2763
EP type number : 0 410 806 006
Governor
Governor design. : RSV400...950A0C928R
Governor no. : 0 420 233 355

Cust. part No. : 3282448

Customer-spec. information
Customer : CUMMINS
Motor : 6 CT 8.3/195HP

TEST BENCH REQUIREMENTS

Inlet line : 2.
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test Lines : 1 680 750 014
Outside diameter : 6.0
x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 28.0
Tolerance bar : ± 1.0
Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 950
Rack travel in mm : 12.15
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 121.5
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.5
Spreed

Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 6.5

Rated speed rpm : 400

Rack travel in mm : 5.20

Tolerance mm : \pm 0.10

Del. quantity
cm3/1000 strokes : 15.0

Tolerance
cm3/1000 strokes : \pm 2.0

Check tolerance
cm3/1000S. : \pm 4.5

Spread
Tolerance

cm3/1000 strokes : 6.0

Check tolerance
cm3/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 950
Aneroid pressure
hPa : 900

Del. quantity
cm3/1000 strokes : 121.5

Tolerance
cm3/1000 strokes : \pm 1.0

Check tolerance
cm3/1000S. : \pm 3.5

Spread
Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 96.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 11.10
Rated speed rpm : 995
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1070
Tolerance 1/min : \pm 5

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1200

rack travel mm : 4.00
Rated speed rpm : 1085
Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 79.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 4.70
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 19.00

Testing:

Rated speed rpm : 400
rack travel mm : 5.20
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 470
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 950
rack travel mm : 12.15
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 12.15
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.80
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 305
rack travel mm : 11.75
Tolerance mm : \pm 0.20

Pressure hPa : 220
rack travel mm : 11.20
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 76.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 160.0
Tolerance
cm³/1000 strokes : \pm 10.0

Check tolerance
cm³/1000s. : \pm 13.0

LOW IDLE

Rated speed rpm : 400

Rack travel in mm : 5.20
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 15.0
Tolerance

cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000s. : \pm 4.5

Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000s. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.06.97
Test oil : ISO 4113

Combination No. : 0 400 836 044

Injection pump
Pump designation : PES6A100D320/3RS2691
: -2
EP type number : 9 410 230 028

Governor
Governor design. : RQV350...1200AB1245
: -1R
Governor no. : 0 420 213 132

Cust. part No. :

Customer-spec. information
Customer : CUMMINS
Motor : 6CT8.3
Power KW : 138.0

TEST BENCH REQUIREMENTS

Inlet line : 2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery mark

°NW after s.o.d. : 10.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 10.00
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 102.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 350

Rack travel in mm : 4.60
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 19.0
Tolerance

cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Speed
Tolerance

cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1200
guide sleeve
travel mm : 6.90

Rated speed rpm : 250
guide sleeve
travel mm : 0.10
Tolerance mm : ± 0.10

Rated speed rpm : 350
guide sleeve
travel mm : 1.25
Tolerance mm : ± 0.25

Rated speed rpm : 450
guide sleeve
travel mm : 2.15
Tolerance mm : ± 0.25

Rated speed rpm : 1350
guide sleeve
travel mm : 8.45
Tolerance mm : ± 0.25

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1250

Rack travel in mm : 16.50
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure

hPa : -

Del. quantity
cm³/1000 strokes : 102.0
Tolerance

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed
Tolerance

cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 44.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 9.00
Rated speed rpm : 1245
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1330
Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 13.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 9.00

Testing:

Rated speed rpm : 350
rack travel mm : 4.60
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 540
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1200
rack travel mm : 10.00
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 290

Check
speed 1/min : > 80
Check
speed 1/min : < 300

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 161.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 4.60
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.08.96
Test oil : ISO 4113

Combination No. : 0 400 844 047

Injection pump
Pump designation : PES4A90D410RS2294
EP type number : 0 410 894 011

Governor
Governor design. : RQV300...1425AB740L
Governor no. : 0 420 212 037

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM 314
Power KW : 62.5

TEST BENCH REQUIREMENTS

Inlet line : 1.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Del. quantity
cm³/1000 strokes : 63.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.5

Speed

Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 4.5

Rated speed rpm : 300

Rack travel in mm : 7.30
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : + 5.0
Spreed
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 4.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 550
guide sleeve
travel mm : 2.85
Tolerance mm : + 0.15

Rated speed rpm : 1460
guide sleeve
travel mm : 8.50
Tolerance mm : + 0.10

Rated speed rpm : 950
guide sleeve
travel mm : 5.35
Tolerance mm : + 0.15

Rated speed rpm : 775
guide sleeve
travel mm : 4.35
Tolerance mm : + 0.25

Rated speed rpm : 300
guide sleeve
travel mm : 0.95
Tolerance mm : + 0.25

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1420

Rack travel in mm : 16.50
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 63.0

Tolerance
cm³/1000 strokes : + 0.5
Check tolerance
cm³/1000S. : + 2.5
Spreed
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 4.5

CONTROL LEVER

control lever
position degree : 118.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 8.70
Rated speed rpm : 1460
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1550
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1700

LOW IDLE

control lever
position degree : 70.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 100
CRT mm min. : > 8.80

Testing:

Rated speed rpm : 300
rack travel mm : 7.30
Tolerance mm : + 0.10

Rated speed rpm : 445

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 14.00
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 76.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000s. : \pm 8.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 7.30
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000s. : 4.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.06.95
Test oil : ISO 4113

Combination No. : 0 400 844 094

Injection pump
Pump designation : PES4A90D410RS2666
EP type number : 0 410 894 029

Governor
Governor design. : RQV300...1400AB1065
 : -12L
Governor no. : 0 420 212 207

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM364
Power KW : 61.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : + 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

D25

x inside diameter : 1.5
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 10.55
Tolerance mm : + 0.05

Del. quantity
cm3/1000 strokes : 59.5

Tolerance
cm3/1000 strokes : + 0.5

Check tolerance
cm3/1000S. : + 2.5

Spreed

Tolerance
cm3/1000 strokes : 3.0

Check tolerance
cm3/1000S. : 5.0

Rated speed rpm : 300

Rack travel in mm : 8.70
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 10.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0
Spreed
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 4.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1500
guide sleeve
travel mm : 8.55
Tolerance mm : ± 0.05

Rated speed rpm : 300
guide sleeve
travel mm : 1.05
Tolerance mm : ± 0.25

Rated speed rpm : 500
guide sleeve
travel mm : 2.55
Tolerance mm : ± 0.25

Rated speed rpm : 750
guide sleeve
travel mm : 4.20
Tolerance mm : ± 0.10

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 59.5
Tolerance
cm³/1000 strokes : ± 0.5
Check tolerance
cm³/1000S. : ± 2.5
Spreed
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 5.0

CONTROL LEVER

control lever
position degree : 116.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 9.50
Rated speed rpm : 1445
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1550
Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1700

LOW IDLE

control lever
position degree : 76.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 10.20

Testing:

Rated speed rpm : 300
rack travel mm : 8.70
Tolerance mm : ± 0.10

Rated speed rpm : 610

TORQUE CONTROL

Dimension a mm : 1.00
Rated speed rpm : 1400
rack travel mm : 10.55
Tolerance mm : ± 0.05

Rated speed rpm : 475
rack travel mm : 11.55
Tolerance mm : ± 0.05

Rated speed rpm : 850
rack travel mm : 11.00
Tolerance mm : ± 0.10

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 475
Del. quantity
cm³/1000 strokes : 46.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.5

Aneroid pressure
hPa : -
Rated speed rpm : 850
Del. quantity
cm³/1000 strokes : 49.0
Tolerance
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000S. : ± 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 17.20
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 strokes : ± 5.0
Check tolerance
cm³/1000S. : ± 8.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 8.70
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 10.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0
Speed
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 4.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.06.97
Test oil : ISO 4113
Combination No. : 0 400 846 336
Injection pump
Pump designation : PES6A90D410RS2293W
EP type number : 0 410 896 049
Governor
Governor design. : RQV300...1425AB740L
Governor no. : 0 420 212 037

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM352
Power KW : 115.0

TEST BENCH REQUIREMENTS

Inlet line : 2.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 922 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test Lines : 1 680 750 014
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1400
Rack travel in mm : 10.90
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 72.0
Tolerance
cm³/1000 strokes : ± 0.5
Check tolerance
cm³/1000s. : ± 2.5
Spread

Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 4.5

Rated speed rpm : 300

Rack travel in mm : 7.60

Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 12.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 5.0

Speed
Tolerance
cm³/1000 strokes : 2.0

Check tolerance
cm³/1000S. : 4.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 550
guide sleeve
travel mm : 2.85
Tolerance mm : \pm 0.15

Rated speed rpm : 1460
guide sleeve
travel mm : 8.50
Tolerance mm : \pm 0.10

Rated speed rpm : 950
guide sleeve
travel mm : 5.35
Tolerance mm : \pm 0.15

Rated speed rpm : 775
guide sleeve
travel mm : 4.35
Tolerance mm : \pm 0.25

Rated speed rpm : 300
guide sleeve
travel mm : 1.45
Tolerance mm : \pm 0.75

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1420

Rack travel in mm : 16.50
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 72.0

Tolerance
cm³/1000 strokes : \pm 0.5

Check tolerance
cm³/1000S. : \pm 2.5

Speed
Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 4.5

CONTROL LEVER

control lever
position degree : 114.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 9.90
Rated speed rpm : 1460
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1575
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1700

LOW IDLE

control lever
position degree : 68.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 9.10

Testing:

Rated speed rpm : 300
rack travel mm : 7.60
Tolerance mm : \pm 0.10

Rated speed rpm : 445

TORQUE CONTROL

Rated speed rpm : 1400
rack travel mm : 10.90
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 76.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000S. : \pm 8.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 7.60
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed

Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 4.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.06.97
Test oil : ISO 4113

Combination No. : 0 400 863 020

Injection pump
Pump designation : PES3A95D410/3RS2905
EP type number : 0 410 893 996

Governor
Governor design. : RSV325...1250A50858L
Governor no. : 0 420 232 621

Cust. part No. : 0423 1592 KY

Customer-spec. information
Customer : KHD-DMI
Motor : F3L912/913_NEU
Power KW : 40.5

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 2

Phasing : 0-120-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 76.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 8.50

Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 11.5

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Spread
Tolerance
cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 76.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 107.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 10.35
Rated speed rpm : 1295
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1355
Tolerance 1/min : \pm 15

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1530

rack travel mm : 4.00
Rated speed rpm : 1380
Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 74.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 8.00
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 19.50

Testing:

Rated speed rpm : 325
rack travel mm : 8.50
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 510
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 11.35
Tolerance mm : \pm 0.05

Rated speed rpm : 500

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 130.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 325
Rack travel in mm : 8.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 11.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.06.97
Test oil : ISO 4113

Combination No. : 0 400 863 021

Injection pump
Pump designation : PES3A95D410/3RS2905
EP type number : 0 410 893 996

Governor
Governor design. : RSV325...900A1C359L
Governor no. : 0 420 232 622

Cust. part No. : 0423 1593 KY

Customer-spec. information
Customer : KHD-DMI
Motor : F3L912/913_NEU
Power KW : 40.5

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 2

Phasing : 0-120-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 11.80
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 80.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 7.90

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 11.5

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Spread
Tolerance
cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 80.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 96.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 10.80
Rated speed rpm : 895
Tolerance 1/min. : + 5

rack travel mm : 4.00
Rated speed rpm : 940
Tolerance 1/min : + 10

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1110

rack travel mm : 4.00
Rated speed rpm : 960
Tolerance 1/min : + 15

LOW IDLE

control lever
position degree : 75.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 7.40
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 325
rack travel mm : 7.90
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 440
Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 850
rack travel mm : 11.80
Tolerance mm : \pm 0.05

Rated speed rpm : 500

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 130.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000s. : \pm 10.0

LOW IDLE

Rated speed rpm : 325
Rack travel in mm : 7.90
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 11.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000s. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 18.06.97

Test oil : ISO 4113

Combination No. : 0 400 863 024

Injection pump

Pump designation : PES3A95D410/3RS2905

EP type number : 0 410 893 996

Governor

Governor design. : RSV325...1250A5C917L

Governor no. : 0 420 232 639

Cust. part No. : 0423 2328 KY

Customer-spec. information

Customer : KHD-DMI

Motor : F3L912

Power KW : 44.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly

: 0 681 343 009

Opening pressure

bar : 173.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.00

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 3- 2

Phasing : 0-120-240

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.35

Tolerance mm : ± 0.05

Del. quantity

cm³/1000 strokes : 76.0

Tolerance

cm³/1000 strokes : ± 1.0

Check tolerance

cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 8.50
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 11.5

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Spread
Tolerance
cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.9

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 76.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 107.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 10.35
Rated speed rpm : 1295
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1355
Tolerance 1/min : ± 15

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1530

rack travel mm : 4.00
Rated speed rpm : 1380
Tolerance 1/min : ± 15

LOW IDLE

control lever
position degree : 74.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 8.00
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 325
rack travel mm : 8.50
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 510
Tolerance 1/min : ± 30

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 11.35
Tolerance mm : \pm 0.05

Rated speed rpm : 500

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 17.00
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000s. : \pm 10.0

LOW IDLE

Rated speed rpm : 325
Rack travel in mm : 8.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 11.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000s. : 9.9

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.06.97
Test oil : ISO 4113

Combination No. : 0 400 864 099

Injection pump
Pump designation : PES4A95D410/3RS2789
EP type number : 0 410 894 995

Governor
Governor design. : RSV325...1250A5C858L
Governor no. : 0 420 232 621

Cust. part No. : 0423 1595 KY

Customer-spec. information
Customer : KHD-DMI
Motor : F4L912/913_NEU
Power KW : 54.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 76.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 8.50

Tolerance mm : +- 0.10

Del. quantity

cm³/1000 strokes : 11.5

Tolerance

cm³/1000 strokes : +- 2.0

Check tolerance

cm³/1000S. : +- 4.5

Speed

Tolerance

cm³/1000 strokes : 5.5

Check tolerance

cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever

position degree : FREE

Rated speed rpm : 800

Rack travel in mm : 0.50

Tolerance mm : +- 0.20

governor spring

pre-tension

click setting x : 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250

Aneroid pressure

hPa : -

Del. quantity

cm³/1000 strokes : 76.0

Tolerance

cm³/1000 strokes : +- 1.0

Check tolerance

cm³/1000S. : +- 3.0

Speed

Tolerance

cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever

position degree : 107.0

tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 10.35

Rated speed rpm : 1295

Tolerance 1/min : +- 5

rack travel mm : 4.00

Rated speed rpm : 1355

Tolerance 1/min : +- 15

rack travel mm : 0.85

Tolerance mm : +- 0.55

Rated speed rpm : 1530

rack travel mm : 4.00

Rated speed rpm : 1350

Tolerance 1/min : +- 15

LOW IDLE

control lever

position degree : 74.0

tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 325

rack travel mm : 8.00

Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 325

rack travel mm : 8.50

Tolerance mm : +- 0.10

rack travel mm : 2.00

Rated speed rpm : 510

Tolerance 1/min : +- 30

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 11.35
Tolerance mm : \pm 0.05

Rated speed rpm : 500

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 130.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000s. : \pm 10.0

LOW IDLE

Rated speed rpm : 325
Rack travel in mm : 8.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 11.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000s. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.06.97
Test oil : ISO 4113

Combination No. : 0 400 864 100

Injection pump
Pump designation : PES4A95D410/3RS2905
EP type number : 0 410 894 995

Governor
Governor design. : RSV325...9C0A1C859L
Governor no. : 0 420 232 622

Cust. part No. : 0423 1596 KY

Customer-spec. information
Customer : KHD-DMI
Motor : F4L912/913_NEU
Power KW : 54.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 11.80
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 80.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 7.90

Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 11.5

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Speed
Tolerance

cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 300

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 80.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed
Tolerance

cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 96.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 10.80
Rated speed rpm : 895
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 940
Tolerance 1/min : ± 10

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1110

rack travel mm : 4.00
Rated speed rpm : 960
Tolerance 1/min : ± 15

LOW IDLE

control lever
position degree : 75.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 7.40
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 325
rack travel mm : 7.90
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 440
Tolerance 1/min : ± 30

TORQUE CONTROL

Rated speed rpm : 850
rack travel mm : 11.80
Tolerance mm : \pm 0.05

Rated speed rpm : 500

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 130.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 7.90
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 11.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.06.97
Test oil : ISO 4113

Combination No. : 0 400 864 107

Injection pump
Pump designation : PES4A95D410/3RS2913
EP type number : 0 410 894 986

Governor
Governor design. : RSV325...900A1C359L
Governor no. : 0 420 232 622

Cust. part No. : 0423 2225 KY

Customer-spec. information
Customer : KHD-DMI
Motor : F4L912/Neu.compr

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 2

Phasing : 0-90-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 11.80
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 80.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance cm3/1000S.	:	8.0
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Rated speed rpm	:	325
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Rack travel in mm	:	7.90
Tolerance mm	:	± 0.10
Del. quantity cm3/1000 strokes	:	11.5
Tolerance cm3/1000 strokes	:	± 2.0
Check tolerance cm3/1000S.	:	± 4.5
Spread Tolerance cm3/1000 strokes	:	5.5
Check tolerance cm3/1000S.	:	9.0

(8) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	:	FREE
Rated speed rpm	:	800

Rack travel in mm	:	0.50
Tolerance mm	:	± 0.20

governor spring pre-tension click setting x	:	4.25
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FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	850
Aneroid pressure hPa	:	-
Del. quantity cm3/1000 strokes	:	80.0
Tolerance cm3/1000 strokes	:	± 1.0
Check tolerance cm3/1000S.	:	± 3.0
Spread Tolerance cm3/1000 strokes	:	3.5
Check tolerance cm3/1000S.	:	8.0

CONTROL LEVER

control lever position degree	:	96.0
tolerance degree	:	± 4.0

RATED SPEED

rack travel mm	:	10.80
Rated speed rpm	:	895
Tolerance 1/min	:	± 5

rack travel mm	:	4.00
Rated speed rpm	:	940
Tolerance 1/min	:	± 10

rack travel mm	:	0.85
Tolerance mm	:	± 0.55
Rated speed rpm	:	1110

rack travel mm	:	4.00
Rated speed rpm	:	960
Tolerance 1/min	:	± 15

LOW IDLE

control lever position degree	:	75.0
tolerance degree	:	± 4.0

Setting point w/out bumper spring

Rated speed rpm	:	325
rack travel mm	:	7.40
Tolerance mm	:	± 0.10

Rated speed rpm	:	100
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CRT mm min.	:	> 19.50
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Testing:

Rated speed rpm	:	325
rack travel mm	:	7.90
Tolerance mm	:	± 0.10

rack travel mm	:	2.00
Rated speed rpm	:	440
Tolerance 1/min	:	± 30

TORQUE CONTROL

Rated speed rpm	:	850
rack travel mm	:	11.80
Tolerance mm	:	± 0.05

Rated speed rpm : 500

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 130.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 325
Rack travel in mm : 7.90
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 11.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spræed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.06.97

Test oil : ISO 4113

Combination No. : 0 400 864 109

Injection pump

Pump designation : PES4A95D410/3RS2789

EP type number : 0 410 894 995

Governor

Governor design. : RSV325...1250A5C917L

Governor no. : 0 420 232 639

Cust. part No. : 0423 2332 KY

Customer-spec. information

Customer : KHD-DMI

Motor : F4L912/913

Power KW : 59.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder assembly

: 0 681 343 009

Opening pressure bar

: 173.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.00

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.35

Tolerance mm : ± 0.05

Del. quantity

cm³/1000 strokes : 76.0

Tolerance

cm³/1000 strokes : ± 1.0

Check tolerance

cm³/1000S. : ± 3.0

Speed

Tolerance

cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 8.50
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 11.5
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.5
Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 76.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.0
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 107.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 10.35
Rated speed rpm : 1295
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1355
Tolerance 1/min : + 15

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1530

rack travel mm : 4.00
Rated speed rpm : 1380
Tolerance 1/min : + 15

LOW IDLE

control lever
position degree : 74.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 8.00
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 325
rack travel mm : 8.50
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 510
Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 11.35
Tolerance mm : + 0.05

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 17.00
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 8.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 11.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.06.97
Test oil : ISO 4113

Combination No. : 0 400 865 029

Injection pump
Pump designation : PES5A95D410/3RS2906
EP type number : 0 410 895 971

Governor
Governor design. : RSV325...900A1C859L
Governor no. : 0 420 232 622

Cust. part No. : 0423 1599 KY

Customer-spec. information
Customer : KHD-DMI
Motor : F5L912/913_NEU
Power KW : 67.5

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 11.80
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 70.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spreed

Tolerance
cm3/1000 strokes : 3.5

Check tolerance
cm3/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 8.60

Del. quantity
cm3/1000 strokes : 11.5

Tolerance
cm3/1000 strokes : +- 2.0

Check tolerance
cm3/1000S. : +- 4.5

Spread
Tolerance
cm3/1000 strokes : 5.5

Check tolerance
cm3/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : +- 0.20

governor spring
pre-tension
click setting x : 2.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850
Aneroid pressure
hPa : -

Del. quantity
cm3/1000 strokes : 70.0

Tolerance
cm3/1000 strokes : +- 1.0

Check tolerance
cm3/1000S. : +- 3.0

Spread
Tolerance
cm3/1000 strokes : 3.5

Check tolerance
cm3/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 91.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 10.50
Rated speed rpm : 895
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 920
Tolerance 1/min : +- 10

rack travel mm : 0.85
Tolerance mm : +- 0.55
Rated speed rpm : 1090

rack travel mm : 4.00
Rated speed rpm : 940

LOW IDLE

control lever
position degree : 69.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 8.10
Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 325
rack travel mm : 8.60

rack travel mm : 2.00
Rated speed rpm : 425
Tolerance 1/min : +- 30

TORQUE CONTROL

Rated speed rpm : 850
rack travel mm : 11.80
Tolerance mm : +- 0.05

Rated speed rpm : 500

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : ± 0.75
Del. quantity
cm³/1000 strokes : 130.0
Tolerance
cm³/1000 strokes : ± 7.5
Check tolerance
cm³/1000S. : ± 10.0

LOW IDLE

Rated speed rpm : 325
Rack travel in mm : 8.60
Del. quantity
cm³/1000 strokes : 11.5
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.06.97
Test oil : ISO 4113

Combination No. : 0 400 866 223

Injection pump
Pump designation : PES6A95D410/3RS2907
EP type number : 0 410 896 884

Governor
Governor design. : RSV325...900A1C859L
Governor no. : 0 420 232 622

Cust. part No. : 0423 1602 KY

Customer-spec. information
Customer : KHD-DMI
Motor : F6L912/913_NEU
Power KW : 81.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 9-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 11.80
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 80.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 7.90

Del. quantity
cm³/1000 strokes : 11.5

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Speed

Tolerance
cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 80.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 96.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 10.80
Rated speed rpm : 895

Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 940

Tolerance 1/min : ± 10

rack travel mm : 0.85
Tolerance mm : ± 0.55

Rated speed rpm : 1110

rack travel mm : 4.00
Rated speed rpm : 960

Tolerance 1/min : ± 15

LOW IDLE

control lever
position degree : 75.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 7.40
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 325
rack travel mm : 7.90

rack travel mm : 2.00
Rated speed rpm : 440

Tolerance 1/min : ± 30

TORQUE CONTROL

Rated speed rpm : 850

rack travel mm : 11.80
Tolerance mm : \pm 0.05

Rated speed rpm : 500

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 130.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 7.90
Del. quantity
cm³/1000 strokes : 11.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.06.97
Test oil : ISO 4113
Combination No. : 0 400 873 042
Injection pump
Pump designation : PES3A95D32ORS2810
EP type number : 0 410 893 997
Governor
Governor design. : RSV375...1175A2C897R
Governor no. : 0 420 233 350

Cust. part No. : 8366 54717

Customer-spec. information

Customer : SISU
Motor : 320 DS
Power KW : 55.0

TEST BENCH REQUIREMENTS

Inlet line : 2.3
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holde
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 2- 3

Phasing : 0-120-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Beginning of delivery differende

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 5.00

BASIC SETTING

Rated speed rpm : 1175

Rack travel in mm : 10.75
Tolerance mm : ± 0.05

Del. quantity
cm3/1000 strokes : 86.5

Tolerance
cm3/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : +- 3.0

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 375

Rack travel in mm : 4.40

Tolerance mm : +- 0.10

Del. quantity
cm³/1000 strokes : 11.5

Tolerance
cm³/1000 strokes : +- 2.0

Check tolerance
cm³/1000S. : +- 4.5

Spread
Tolerance
cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : +- 0.20

governor spring
pre-tension
click setting x : 4.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1175
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 86.5
Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 3.0

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 101.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 9.70
Rated speed rpm : 1220
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1285
Tolerance 1/min : +- 15

rack travel mm : 0.85
Tolerance mm : +- 0.55
Rated speed rpm : 1440

rack travel mm : 4.00
Rated speed rpm : 1295
Tolerance 1/min : +- 15

LOW IDLE

control lever
position degree : 75.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 375
rack travel mm : 3.80
Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 375
rack travel mm : 4.40
Tolerance mm : +- 0.10

rack travel mm : 2.00

Rated speed rpm : 450
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1175
rack travel mm : 10.75
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 11.25
Tolerance mm : \pm 0.05

Rated speed rpm : 990
rack travel mm : 10.90
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 76.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 205.0
Tolerance
cm³/1000 strokes : \pm 8.0
Check tolerance
cm³/1000S. : \pm 11.0

LOW IDLE

Rated speed rpm : 375
Rack travel in mm : 4.40
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 11.5
Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.08.96
Test oil : ISO 4113

Combination No. : 0 400 874 218

Injection pump
Pump designation : PES4A90D410RS2294
EP type number : 0 410 894 011

Governor
Governor design. : RSV350...1400A0C2006
: L
Governor no. : 0 420 232 395

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM 314
Power KW : 62.5

TEST BENCH REQUIREMENTS

Inlet line : 1.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

F05

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.5
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1380

Rack travel in mm : 10.45
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 64.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.5

Spreed

Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 4.5

Rated speed rpm : 350

Rack travel in mm : 9.30
 Tolerance mm : \pm 0.10
 Del. quantity
 cm³/1000 strokes : 27.0
 Tolerance
 cm³/1000 strokes : \pm 3.0
 Check tolerance
 cm³/1000S. : \pm 5.0
 Spreed
 Tolerance
 cm³/1000 strokes : 2.0
 Check tolerance
 cm³/1000S. : 4.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
 position degree : - 3
 Rated speed rpm : 800
 Rack travel in mm : 0.50
 Tolerance mm : \pm 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1380
 Aneroid pressure
 hPa : -
 Del. quantity
 cm³/1000 strokes : 64.0
 Tolerance
 cm³/1000 strokes : \pm 0.5
 Check tolerance
 cm³/1000S. : \pm 2.5
 Spreed
 Tolerance
 cm³/1000 strokes : 3.0
 Check tolerance
 cm³/1000S. : 4.5

CONTROL LEVER

control lever
 position degree : 115.0
 tolerance degree : \pm 4.0

RATED SPEED
 rack travel mm : 9.40
 Rated speed rpm : 1425

Tolerance 1/min : \pm 5
 rack travel mm : 4.40
 Rated speed rpm : 1498
 Tolerance 1/min : \pm 8
 rack travel mm : 1.00
 Tolerance mm : \pm 0.70
 Rated speed rpm : 1600

LOW IDLE

control lever
 position degree : 83.0
 tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 100
 CRT mm min. : > 19.00

Testing:

Rated speed rpm : 350
 rack travel mm : 9.30
 Tolerance mm : \pm 0.10

rack travel mm : 2.00
 Rated speed rpm : 560
 Tolerance 1/min : \pm 30

Rated speed rpm : 650
 CRT mm max. : < 1.00

TORQUE CONTROL

Rated speed rpm : 1380
 rack travel mm : 10.45
 Tolerance mm : \pm 0.05

Rated speed rpm : 600
 rack travel mm : 10.55
 Tolerance mm : \pm 0.10

STARTING FUEL DELIVERY

Rated speed rpm : 100
 rack travel mm : 15.00
 Tolerance mm : \pm 0.30

LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 9.30

Tolerance mm : \pm 0.10

Del. quantity

cm³/1000 strokes : 27.0

Tolerance

cm³/1000 strokes : \pm 3.0

Check tolerance

cm³/1000S. : \pm 5.0

Speed

Tolerance

cm³/1000 strokes : 2.0

Check tolerance

cm³/1000S. : 4.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.09.96
Test oil : ISO 4113
Combination No. : 0 400 876 218
Injection pump
Pump designation : PES6A90D410RS2293
EP type number : 0 410 896 031
Governor
Governor design. : RSV350...1400A0C1080
: L
Governor no. : 0 420 232 408
Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM 352
Power KW : 92.0

TEST BENCH REQUIREMENTS

Inlet line : 1.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

F08

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1400
Rack travel in mm : 9.75
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 63.5
Tolerance
cm³/1000 strokes : ± 0.5
Check tolerance
cm³/1000s. : ± 2.5
Speed

Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 4.5

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 3.0
Spread
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 4.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : +- 0.20

governor spring
pre-tension
click setting x : 3.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 63.5
Tolerance
cm³/1000 strokes : +- 0.5
Check tolerance
cm³/1000S. : +- 2.5
Spread
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 4.5

CONTROL LEVER

control lever
position degree : 118.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 0.85
Tolerance mm : +- 0.55
Rated speed rpm : 1570

rack travel mm : 4.00
Rated speed rpm : 1525
Tolerance 1/min : +- 15

rack travel mm : 8.70
Rated speed rpm : 1450
Tolerance 1/min : +- 5

LOW IDLE

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 6.80
Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

rack travel mm : 2.00
Rated speed rpm : 2775
Tolerance 1/min : +- 2325

TORQUE CONTROL

Rated speed rpm : 1400
rack travel mm : 9.75
Tolerance mm : +- 0.05

Rated speed rpm : 600
rack travel mm : 10.00
Tolerance mm : +- 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 52.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000s. : ± 3.0

Aneroid pressure
hPa : -
Rated speed rpm : 850
Del. quantity
cm³/1000 strokes : 57.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000s. : ± 3.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 15.20
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 strokes : ± 5.0
Check tolerance
cm³/1000s. : ± 8.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000s. : ± 3.0
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000s. : 4.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 07.06.97
Test oil : ISO 4113

Combination No. : F 002 A0Z 007

Injection pump
Pump designation : PES6A95D320/3RS2881
EP type number : 9 410 037 215

Governor
Governor design. : RSV475...1100A0C881R
Governor no. : F 002 A20 207

Cust. part No. : 3928597

Customer-spec. information
Customer : CUMMINS
Motor : 6BTA
Power KW : 122.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 8.50
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.29

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.20

Tolerance mm	: ± 0.05
<hr/>	
Del. quantity cm3/1000 strokes	: 116.9
<hr/>	
Tolerance cm3/1000 strokes	: ± 1.0
<hr/>	
Check tolerance cm3/1000S.	: ± 3.0
<hr/>	
Spreed	
<hr/>	
Tolerance cm3/1000 strokes	: 4.0
<hr/>	
Check tolerance cm3/1000S.	: 6.5
<hr/>	

Rated speed rpm	: 475
<hr/>	
Rack travel in mm	: 5.20
Tolerance mm	: ± 0.10
Del. quantity cm3/1000 strokes	: 21.5
Tolerance cm3/1000 strokes	: ± 2.0
Check tolerance cm3/1000S.	: ± 4.5
<hr/>	
Spreed	
Tolerance cm3/1000 strokes	: 6.0
Check tolerance cm3/1000S.	: 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	: FREE
Rated speed rpm	: 800
<hr/>	
Rack travel in mm	: 0.50
Tolerance mm	: ± 0.20
<hr/>	
governor spring pre-tension click setting x	: 3.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1100
Aneroid pressure hPa	: 1200
Del. quantity cm3/1000 strokes	: 116.9
Tolerance cm3/1000 strokes	: ± 1.0
Check tolerance cm3/1000S.	: ± 3.0
<hr/>	
Spreed	
Tolerance cm3/1000 strokes	: 4.0
Check tolerance cm3/1000S.	: 6.5

CONTROL LEVER

control lever position degree	: 100.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 12.20
Rated speed rpm	: 1155
Tolerance 1/min	: ± 5

rack travel mm	: 6.50
Rated speed rpm	: 1215
Tolerance 1/min	: ± 5

rack travel mm	: 0.85
Tolerance mm	: ± 0.55
Rated speed rpm	: 1400

rack travel mm	: 6.50
Rated speed rpm	: 1215
Tolerance 1/min	: ± 15

LOW IDLE

control lever position degree	: 80.0
tolerance degree	: ± 4.0

Control lever difference Grad	: 20.0
tolerance degree	: ± 6.0

Setting point w/out bumper spring

Rated speed rpm	: 475
rack travel mm	: 4.70
Tolerance mm	: ± 0.10

Rated speed rpm : 100
CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475
rack travel mm : 5.20
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 550
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 13.20
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 14.20
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.40
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 700
rack travel mm : 12.50
Tolerance mm : \pm 0.20

Pressure hPa : 500
rack travel mm : 11.00
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 800

Del. quantity
cm³/1000 strokes : 133.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

Aneroid pressure
hPa : -

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 85.9
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 120.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 475

Rack travel in mm : 5.20
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 21.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.06.97
Test oil : ISO 4113

Combination No. : F 002 A0Z 011

Injection pump
Pump designation : PES6A95D320/3RS2881
EP type number : 9 410 037 215

Governor
Governor design. : RSV475...1100A0C888R
Governor no. : F 002 A20 212

Cust. part No. : 3930164

Customer-spec. information
Customer : CUMMINS
Motor : 6BTA
Power KW : 124.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 7.50
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.29

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.65

Tolerance mm	: ± 0.05
<hr/>	
Del. quantity cm3/1000 strokes	: 116.0
<hr/>	
Tolerance cm3/1000 strokes	: ± 1.0
<hr/>	
Check tolerance cm3/1000S.	: ± 3.0
<hr/>	
Spreed	
<hr/>	
Tolerance cm3/1000 strokes	: 4.0
<hr/>	
Check tolerance cm3/1000S.	: 6.5
<hr/>	

Rated speed rpm	: 475
<hr/>	
Rack travel in mm	: 5.95
Tolerance mm	: ± 0.10
Del. quantity cm3/1000 strokes	: 20.6
Tolerance cm3/1000 strokes	: ± 2.0
Check tolerance cm3/1000S.	: ± 4.5
<hr/>	
Spreed	
Tolerance cm3/1000 strokes	: 6.0
Check tolerance cm3/1000S.	: 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	: FREE
Rated speed rpm	: 800
<hr/>	
Rack travel in mm	: 0.50
Tolerance mm	: ± 0.20
<hr/>	
governor spring pre-tension click setting x	: 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1050
Aneroid pressure hPa	: 1200
Del. quantity cm3/1000 strokes	: 116.0
Tolerance cm3/1000 strokes	: ± 1.0
Check tolerance cm3/1000S.	: ± 3.0
Spreed	
Tolerance cm3/1000 strokes	: 4.0
Check tolerance cm3/1000S.	: 6.5

CONTROL LEVER

control lever position degree	: 94.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 12.70
Rated speed rpm	: 1115
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1185
Tolerance 1/min	: ± 15

rack travel mm	: 0.85
Tolerance mm	: ± 0.55
Rated speed rpm	: 1300

rack travel mm	: 4.00
Rated speed rpm	: 1190
Tolerance 1/min	: ± 15

LOW IDLE

control lever position degree	: 75.0
tolerance degree	: ± 4.0

Control lever difference

Grad	: 19.0
tolerance degree	: ± 6.0

Setting point w/out bumper spring

Rated speed rpm	: 475
rack travel mm	: 5.45
Tolerance mm	: ± 0.10

Rated speed rpm : 100
CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475
rack travel mm : 5.95
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 550
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 13.65
Tolerance mm : \pm 0.05

Rated speed rpm : 750

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.70
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 550
rack travel mm : 12.50
Tolerance mm : \pm 0.20

Pressure hPa : 400
rack travel mm : 11.85
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 120.0

Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.0

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 83.9
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 121.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000s. : \pm 15.0

LOW IDLE

Rated speed rpm : 475

Rack travel in mm : 5.95
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 20.6
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000s. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.06.97

Test oil : ISO 4113

Combination No. : F 002 A0Z 033

Injection pump

Pump designation : PES6A95D320/3RS2881

EP type number : 9 410 037 215

Governor

Governer design. : RSV475...1050AOC911R

Governer no. : F 002 A20 223

Cust. part No. : 3283692

Customer-spec. information

Customer : CUMMINS

Motor : 6BT-155 PS/2100

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0

Tolerance bar : ± 0.1

Test nozzle holder assembly

: 1 688 901 101

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 2.85

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 7.00

Tolerance : ± 0.10

Check

tolerance °NW : ± 0.29

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.40

Tolerance mm	: +- 0.05
<hr/>	
Del. quantity cm3/1000 strokes	: 113.0
<hr/>	
Tolerance cm3/1000 strokes	: +- 1.0
<hr/>	
Check tolerance cm3/1000S.	: +- 3.0
<hr/>	
Spreed	
<hr/>	
Tolerance cm3/1000 strokes	: 4.0
<hr/>	
Check tolerance cm3/1000S.	: 6.5
<hr/>	

Rated speed rpm	: 475
Rack travel in mm	: 5.80
Tolerance mm	: +- 0.10
Del. quantity cm3/1000 strokes	: 20.8
Tolerance cm3/1000 strokes	: +- 2.0
Check tolerance cm3/1000S.	: +- 4.5
Spreed	
Tolerance cm3/1000 strokes	: 6.0
Check tolerance cm3/1000S.	: 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	: +- 0.20
governor spring pre-tension click setting x	: 4.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1050
Aneroid pressure hPa	: 1200

F18

Del. quantity cm3/1000 strokes	: 113.0
Tolerance cm3/1000 strokes	: +- 1.0
Check tolerance cm3/1000S.	: +- 3.0
Spreed	
Tolerance cm3/1000 strokes	: 4.0
Check tolerance cm3/1000S.	: 6.5

CONTROL LEVER

control lever position degree	: 104.0
tolerance degree	: +- 4.0

RATED SPEED

rack travel mm	: 12.40
Rated speed rpm	: 1080
Tolerance 1/min	: +- 5

rack travel mm	: 4.00
Rated speed rpm	: 1185
Tolerance 1/min	: +- 5

rack travel mm	: 0.85
Tolerance mm	: +- 0.55
Rated speed rpm	: 1300

rack travel mm	: 4.00
Tolerance mm	: +- 0.05
Rated speed rpm	: 1185
Tolerance 1/min	: +- 15

LOW IDLE

control lever position degree	: 83.0
tolerance degree	: +- 4.0

Setting point w/out bumper spring

Rated speed rpm	: 475
rack travel mm	: 5.30
Tolerance mm	: +- 0.10

Rated speed rpm	: 100
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CRT mm min.	: > 19.00
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Testing:

Rated speed rpm : 475
rack travel mm : 5.80
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 550
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 13.40
Tolerance mm : \pm 0.05

Rated speed rpm : 750

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 11.10
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 700
rack travel mm : 12.60
Tolerance mm : \pm 0.20

Pressure hPa : 550
rack travel mm : 11.75
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 119.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 87.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 121.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 475

Rack travel in mm : 5.80
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 20.8
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 07.06.97
Test oil : ISO 4113

Combination No. : F 002 A0Z 051

Injection pump
Pump designation : PES4A95D320/3RS2920
EP type number : F 002 A10 012

Governor
Governor design. : RSV475...1050AOC931R
Governor no. : F 002 A20 237

Cust. part No. : 3283921

Customer-spec. information
Customer : CUMMINS
Motor : CUMMINS-4BTA-3.9
Power KW : 79.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : +- 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : +- 1.0

Prestroke mm : 2.45
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10

Rack travel in mm : 10.50
Tolerance mm : +- 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

*NW after s.o.d. : 9.00
Tolerance : +- 0.10
Check
tolerance °NW : +- 0.29

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.30
Tolerance mm : +- 0.05

Del. quantity
cm3/1000 strokes : 115.0

Tolerance
cm3/1000 strokes : +- 1.0

Check tolerance
cm3/1000S. : +- 3.0

Spread

Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 6.5

Rated speed rpm : 475

Rack travel in mm : 6.25
Tolerance mm : +- 0.10

Del. quantity
cm3/1000 strokes : 22.0

Tolerance
cm3/1000 strokes : +- 2.0

Check tolerance
cm3/1000S. : +- 4.5

Spread

Tolerance
cm3/1000 strokes : 6.0

Check tolerance
cm3/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : +- 0.20

governor spring
pre-tension
click setting x : 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 900
Del. quantity
cm3/1000 strokes : 115.0

F21

Tolerance
cm3/1000 strokes : +- 1.0

Check tolerance
cm3/1000S. : +- 3.0

Spread

Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 99.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 12.30
Rated speed rpm : 1110
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1195
Tolerance 1/min : +- 5

rack travel mm : 0.85
Tolerance mm : +- 0.55
Rated speed rpm : 1500

rack travel mm : 4.00
Rated speed rpm : 1195
Tolerance 1/min : +- 15

LOW IDLE

control lever
position degree : 79.0
tolerance degree : +- 4.0

Control lever difference
Grad : 20.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 475
rack travel mm : 5.75
Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475
rack travel mm : 6.25
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 550
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 13.30
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 14.40
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900

Rated speed rpm : 500
Pressure hPa :
rack travel mm : 11.20
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 600
rack travel mm : 13.30
Tolerance mm : \pm 0.20

Pressure hPa : 400
rack travel mm : 12.00
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 129.2
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 75.9
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 121.4
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 475
Rack travel in mm : 6.25
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.06.97
Test oil : ISO 4113

Combination No. : 0 402 034 700

Injection pump
Pump designation : PES4P120B120RS3379
EP type number : 0 412 024 702

Governor
Governor design. : RQV475...1100PA1314K
Governor no. : 0 421 815 543

Cust. part No. : 3928601

Customer-spec. information
Customer : CDC
Motor : 4BTA-A
Power KW : 93.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

F23

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

°NW after s.o.d. : 6.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 142.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 4.0

Spread

Tolerance
cm3/1000 strokes : 8.0

Check tolerance
cm3/1000S. : 12.0

Rated speed rpm : 475

Rack travel in mm : 6.10

Tolerance mm : + 0.10

Del. quantity
cm3/1000 strokes : 31.0

Tolerance
cm3/1000 strokes : + 3.0

Check tolerance
cm3/1000S. : + 5.0

Spread

Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1163
guide sleeve
travel mm : 7.66
Tolerance mm : + 0.15

Rated speed rpm : 475
guide sleeve
travel mm : 1.59
Tolerance mm : + 0.20

Rated speed rpm : 931
guide sleeve
travel mm : 5.89
Tolerance mm : + 0.25

Rated speed rpm : 670
guide sleeve
travel mm : 3.53
Tolerance mm : + 0.25

Rated speed rpm : 1660

guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1200
Del. quantity
cm3/1000 strokes : 142.0
Tolerance
cm3/1000 strokes : + 1.0
Check tolerance
cm3/1000S. : + 4.0
Spread
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 111.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 10.50
Rated speed rpm : 1155
Tolerance 1/min : + 15

rack travel mm : 6.60
Rated speed rpm : 1230
Tolerance 1/min : + 5

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 70.0
tolerance degree : + 4.0

Control lever difference
Grad : 43.0
tolerance degree : + 6.0

Setting point w/out bumper spring

Rated speed rpm : 400

CRT mm min. : > 7.40

Testing:

Rated speed rpm : 475
rack travel mm : 6.10
Tolerance mm : \pm 0.10

Rated speed rpm : 550

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 11.35
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 11.40
Tolerance mm : \pm 0.20

Rated speed rpm : 550
rack travel mm : 11.00
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1100
Pressure hPa : 1200

Rated speed rpm : 1100
Pressure hPa : -
rack travel mm : 9.60
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1100

Pressure hPa : 765
rack travel mm : 11.00
Tolerance mm : \pm 0.20

Pressure hPa : 600
rack travel mm : 10.00
Tolerance mm : \pm 0.20

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 415

Check
speed 1/min : > 80

Check
speed 1/min : < 425

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1200
Rated speed rpm : 750

Del. quantity
cm³/1000 strokes : 146.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Aneroid pressure

hPa : -
Rated speed rpm : 1100

Del. quantity
cm³/1000 strokes : 107.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.00

Tolerance mm : \pm 0.50
Del. quantity

cm³/1000 strokes : 169.0

Tolerance
cm³/1000 strokes : \pm 20.0

Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 475

Rack travel in mm : 6.10
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 31.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000s. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000s. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.06.97
Test oil : ISO 4113

Combination No. : 0 402 736 813

Injection pump
Pump designation : PES6P110A120RS7214
EP type number : 0 412 716 805

Governor
Governor design. : RQV350...1100PA964
: -5K
Governor no. : 0 421 815 257

Cust. part No. : 3921772

Customer-spec. information
Customer : CDC
Motor : 6CTA-A
Power KW : 187.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 4.40
Tolerance mm : ± 0.03
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 5.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 14.55

Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 187.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.60

Tolerance mm : \pm 0.10

Del. quantity

cm³/1000 strokes : 30.0

Tolerance

cm³/1000 strokes : \pm 3.0

Check tolerance

cm³/1000S. : \pm 5.0

Spread

Tolerance

cm³/1000 strokes : 8.0

Check tolerance

cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1000

guide sleeve

travel mm : 8.20

Tolerance mm : \pm 0.10

Rated speed rpm : 350

guide sleeve

travel mm : 1.90

Tolerance mm : \pm 0.10

Rated speed rpm : 450

guide sleeve

travel mm : 3.30

Tolerance mm : \pm 0.20

Rated speed rpm : 600

guide sleeve

travel mm : 5.30

Tolerance mm : \pm 0.20

Rated speed rpm : 1200

guide sleeve

travel mm : 9.80

Tolerance mm : \pm 0.20

GUIDE SLEEVE POSITION

control lever

position degree : - 1

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure

hPa : 1500

Del. quantity

cm³/1000 strokes : 187.5

Tolerance

cm³/1000 strokes : \pm 1.0

Check tolerance

cm³/1000S. : \pm 4.0

Spread

Tolerance

cm³/1000 strokes : 5.0

Check tolerance

cm³/1000S. : 9.0

CONTROL LEVER

control lever

position degree : 118.0

tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 13.50

Rated speed rpm : 1150

Tolerance 1/min : \pm 5

rack travel mm : 4.00

Rated speed rpm : 1305

Tolerance 1/min : \pm 15

rack travel mm : 0.50

Tolerance mm : \pm 0.50

Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 67.0
tolerance degree : ± 4.0

Control lever difference
Grad : 51.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 275
CRT mm min. : > 7.20

Testing:

Rated speed rpm : 350
rack travel mm : 5.60
Tolerance mm : ± 0.10

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 14.55
Tolerance mm : ± 0.05

Rated speed rpm : 650
rack travel mm : 13.60
Tolerance mm : ± 0.10

Rated speed rpm : 500
rack travel mm : 13.10
Tolerance mm : ± 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1100
Pressure hPa : 1500

Rated speed rpm : 1100
Pressure hPa : -
rack travel mm : 7.90
Tolerance mm : ± 0.20

MEASUREMENT

Rated speed rpm : 1100

Pressure hPa : 845
rack travel mm : 13.80
Tolerance mm : ± 0.20

Pressure hPa : 335
rack travel mm : 10.15
Tolerance mm : ± 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 290

Check
speed 1/min : > 80
Check
speed 1/min : < 300

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 203.5
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 93.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 11.30
Tolerance mm : ± 0.50
Del. quantity
cm³/1000 strokes : 155.0
Tolerance
cm³/1000 strokes : ± 20.0
Check tolerance
cm³/1000S. : ± 25.0

LOW IDLE

Rated speed rpm : 350
Rack travel in mm : 5.60
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.06.97
Test oil : ISO 4113

Combination No. : 0 402 736 913

Injection pump
Pump designation : PES6P120A12ORS7369
EP type number : 0 412 726 935

Governor
Governor design. : RQV400...1400PA1211
: -1K
Governor no. : 0 421 815 530

Cust. part No. : 3931538

Customer-spec. information
Customer : CDC
Motor : 6BTA-A
Power KW : 160.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 12.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

°NW after s.o.d. : 6.75
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 14.45
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 180.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spreed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 13.0

Rated speed rpm : 420

Rack travel in mm : 6.10
Tolerance mm : ± 0.20

Del. quantity
cm³/1000 strokes : 16.5

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 5.0

Spreed

Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 7.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1410
guide sleeve

travel mm : 8.73
Tolerance mm : ± 0.25

Rated speed rpm : 400
guide sleeve

travel mm : 2.01
Tolerance mm : ± 0.25

Rated speed rpm : 1488
guide sleeve

travel mm : 9.53
Tolerance mm : ± 0.25

Rated speed rpm : 462
guide sleeve

travel mm : 2.91

Tolerance mm : ± 0.25

Rated speed rpm : 512

guide sleeve
travel mm : 3.37

Tolerance mm : ± 0.25

Rated speed rpm : 1000

guide sleeve
travel mm : 5.53

Tolerance mm : ± 0.25

Rated speed rpm : 2130

guide sleeve
travel mm : 13.50

Tolerance mm : ± 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300

Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 180.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spreed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 13.0

CONTROL LEVER

control lever

position degree : 118.0
tolerance degree : ± 6.0

RATED SPEED

rack travel mm : 13.40
Rated speed rpm : 1450

Tolerance 1/min : ± 25

rack travel mm : 5.50

Rated speed rpm : 1650
Tolerance 1/min : ± 5

rack travel mm : 0.50
Tolerance mm : ± 0.50

Rated speed rpm : 1875

LOW IDLE

control lever
position degree : 68.0
tolerance degree : \pm 6.0

Control lever difference
Grad : 50.0
tolerance degree : \pm 6.0

Setting point w/out bumper spring

Rated speed rpm : 300
CRT mm min. : $>$ 8.70

Testing:

Rated speed rpm : 420
rack travel mm : 6.10
Tolerance mm : \pm 0.20

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 14.45
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 11.80
Tolerance mm : \pm 0.20

Rated speed rpm : 1100
rack travel mm : 13.30
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1300
Pressure hPa : 1500

Rated speed rpm : 1300
Pressure hPa : -
rack travel mm : 9.60
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1300
Pressure hPa : 965
rack travel mm : 13.10
Tolerance mm : \pm 0.30

Pressure hPa : 390
rack travel mm : 10.80
Tolerance mm : \pm 0.20

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 340

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 350

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 118.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 13.0

Aneroid pressure
hPa : -
Rated speed rpm : 1300
Del. quantity
cm³/1000 strokes : 79.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 12.80
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 157.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 420

Rack travel in mm : 6.10
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 16.5
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.06.97
Test oil : ISO 4113

Combination No. : 9 400 030 737

Injection pump
Pump designation : PES6A95D320/3RS2881
EP type number : 9 410 037 215

Governor
Governor design. : RSV475...1100AOC850R
Governor no. : 9 420 034 716

Cust. part No. : 3929409

Customer-spec. information
Customer : CDC
Motor : 6BT
Power KW : 90.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

*NW after s.o.d. : 7.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 10.85
Tolerance mm : ± 0.05

Del. quantity cm ³ /1000 strokes	:	86.0
Tolerance cm ³ /1000 strokes	: ±	1.0
Check tolerance cm ³ /1000S.	: ±	3.0
Spread		
Tolerance cm ³ /1000 strokes	:	3.5
Check tolerance cm ³ /1000S.	:	6.0

Rated speed rpm	:	500
Rack travel in mm	:	5.40
Tolerance mm	: ±	0.10
Del. quantity cm ³ /1000 strokes	:	18.5
Tolerance cm ³ /1000 strokes	: ±	2.0
Check tolerance cm ³ /1000S.	: ±	4.5
Spread		
Tolerance cm ³ /1000 strokes	:	3.5
Check tolerance cm ³ /1000S.	:	5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	:	- 3
Rated speed rpm	:	800
Rack travel in mm	:	0.50
Tolerance mm	: ±	0.20
governor spring pre-tension click setting x	:	4.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	1100
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Aneroid pressure hPa	:	-
Del. quantity cm ³ /1000 strokes	:	86.0
Tolerance cm ³ /1000 strokes	: ±	1.0
Check tolerance cm ³ /1000S.	: ±	3.0
Spread		
Tolerance cm ³ /1000 strokes	:	3.5
Check tolerance cm ³ /1000S.	:	6.0

CONTROL LEVER

control lever position degree	:	106.0
tolerance degree	: ±	4.0

RATED SPEED

rack travel mm	:	9.80
Rated speed rpm	:	1165
Tolerance 1/min	: ±	5

rack travel mm	:	5.50
Rated speed rpm	:	1220
Tolerance 1/min	: ±	5

rack travel mm	:	0.85
Tolerance mm	: ±	0.55
Rated speed rpm	:	1350

rack travel mm	:	5.50
Rated speed rpm	:	1230
Tolerance 1/min	: ±	15

LOW IDLE

control lever position degree	:	87.0
tolerance degree	: ±	4.0

Control Lever difference

Grad	:	19.0
tolerance degree	: ±	6.0

Setting point w/out bumper spring

Rated speed rpm	:	500
rack travel mm	:	4.90
Tolerance mm	: ±	0.10

Rated speed rpm	:	100
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CRT mm min. : > 19.00

Testing:

Rated speed rpm : 500
rack travel mm : 5.40
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 10.85
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 11.60
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 800
Pressure hPa : -

MEASUREMENT

Pressure hPa : 800
rack travel mm : 10.90
Tolerance mm : \pm 0.30

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -

Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 96.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 120.5

Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 500
Rack travel in mm : 5.40
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 18.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.06.97
Test oil : ISO 4113

Combination No. : F 002 A0Z 070

Injection pump
Pump designation : PES6A95D320/3RS2881
EP type number : 9 410 037 215

Governor
Governor design. : RSV475...1100A2C948R
Governor no. : F 002 A20 249

Cust. part No. : 3933621

Customer-spec. information

Customer : CDC
Motor : 6BTA
Power KW : 114.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 8.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 7

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.35

Tolerance mm	: + 0.05
<hr/>	
Del. quantity cm3/1000 strokes	: 105.5
<hr/>	
Tolerance cm3/1000 strokes	: + 1.0
<hr/>	
Check tolerance cm3/1000S.	: + 3.0
<hr/>	
Spreed	
<hr/>	
Tolerance cm3/1000 strokes	: 3.5
<hr/>	
Check tolerance cm3/1000S.	: 6.0
<hr/>	

Rated speed rpm	: 500
<hr/>	
Rack travel in mm	: 5.35
Tolerance mm	: + 0.10
Del. quantity cm3/1000 strokes	: 22.0
Tolerance cm3/1000 strokes	: + 2.0
Check tolerance cm3/1000S.	: + 4.5
Spreed	
Tolerance cm3/1000 strokes	: 3.5
Check tolerance cm3/1000S.	: 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	: - 3
Rated speed rpm	: 800
<hr/>	
Rack travel in mm	: 0.50
Tolerance mm	: + 0.20
<hr/>	
governor spring pre-tension click setting x	: 3.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1100
Aneroid pressure hPa	: 1200
Del. quantity cm3/1000 strokes	: 105.5
Tolerance cm3/1000 strokes	: + 1.0
Check tolerance cm3/1000S.	: + 3.0
Spreed	
Tolerance cm3/1000 strokes	: 3.5
Check tolerance cm3/1000S.	: 6.0

CONTROL LEVER

control lever position degree	: 102.0
tolerance degree	: + 4.0

RATED SPEED

rack travel mm	: 11.30
Rated speed rpm	: 1165
Tolerance 1/min	: + 5

rack travel mm	: 4.00
Rated speed rpm	: 1245
Tolerance 1/min	: + 5

rack travel mm	: 0.85
Tolerance mm	: + 0.55
Rated speed rpm	: 1300

rack travel mm	: 4.00
Rated speed rpm	: 1250
Tolerance 1/min	: + 15

LOW IDLE

control lever position degree	: 79.0
tolerance degree	: + 4.0

Control lever difference Grad	: 23.0
tolerance degree	: + 6.0

Setting point w/out bumper spring

Rated speed rpm	: 500
rack travel mm	: 4.85
Tolerance mm	: + 0.10

Rated speed rpm : 100
 CRT mm min. : > 19.00
 Testing:
 Rated speed rpm : 500
 rack travel mm : 5.35
 Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1100
 rack travel mm : 12.35
 Tolerance mm : \pm 0.05

Rated speed rpm : 750
 rack travel mm : 13.65
 Tolerance mm : \pm 0.20

Rated speed rpm : 1000
 rack travel mm : 13.10
 Tolerance mm : \pm 0.20

Rated speed rpm : 900
 rack travel mm : 13.60
 Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
 Pressure hPa : 1200

Rated speed rpm : 500
 Pressure hPa : -
 rack travel mm : 10.60
 Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500
 Pressure hPa : 800
 rack travel mm : 12.90
 Tolerance mm : \pm 0.20

Pressure hPa : 550
 rack travel mm : 11.80
 Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : 1200
 Rated speed rpm : 900
 Del. quantity
 cm³/1000 strokes : 122.5
 Tolerance
 cm³/1000 strokes : \pm 2.0
 Check tolerance
 cm³/1000S. : \pm 4.0

Aneroid pressure
 hPa : -
 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 85.0
 Tolerance
 cm³/1000 strokes : \pm 1.0
 Check tolerance
 cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
 rack travel mm : 20.50
 Tolerance mm : \pm 0.50
 Del. quantity
 cm³/1000 strokes : 120.5
 Tolerance
 cm³/1000 strokes : \pm 10.0
 Check tolerance
 cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 500
 Rack travel in mm : 5.35
 Tolerance mm : \pm 0.10
 Del. quantity
 cm³/1000 strokes : 22.0
 Tolerance
 cm³/1000 strokes : \pm 2.0
 Check tolerance
 cm³/1000S. : \pm 4.5
 Speed
 Tolerance
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.06.97
Test oil : ISO 4113
Combination No. : F 002 A0Z 071
Injection pump
Pump designation : PES6A95D320/3RS2928
EP type number : F 002 A10 019
Governor
Governor design. : RSV450...900A4C949R
Governor no. : F 002 A20 247

Cust. part No. : 3933099

Customer-spec. information
Customer : CDC
Motor : 6CT 8.3
Power KW : 104.3

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 093
Inlet press. bar : 2.0
Tolerance bar : ± 0.1
Test nozzle holder
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0
Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Start of delivery blocking
°NW after s.o.d. : 7.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900
Rack travel in mm : 11.85
Tolerance mm : ± 0.05

Del. quantity cm3/1000 strokes	: 109.0
Tolerance cm3/1000 strokes	: +- 1.0
Check tolerance cm3/1000S.	: +- 3.0
Spreed	
Tolerance cm3/1000 strokes	: 4.0
Check tolerance cm3/1000S.	: 6.5

Rated speed rpm	: 425
Rack travel in mm	: 8.90
Tolerance mm	: +- 0.10
Del. quantity cm3/1000 strokes	: 32.0
Tolerance cm3/1000 strokes	: +- 2.0
Check tolerance cm3/1000S.	: +- 4.5
Spreed	
Tolerance cm3/1000 strokes	: 6.0
Check tolerance cm3/1000S.	: 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	: - 3
Rated speed rpm	: 100
Rack travel in mm	: 0.50
Tolerance mm	: +- 0.20
governor spring pre-tension click setting x	: 3.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 900
-----------------	-------

Aneroid pressure hPa	: -
Del. quantity cm3/1000 strokes	: 109.0
Tolerance cm3/1000 strokes	: +- 1.0
Check tolerance cm3/1000S.	: +- 3.0
Spreed	
Tolerance cm3/1000 strokes	: 4.0
Check tolerance cm3/1000S.	: 6.5

CONTROL LEVER

control lever position degree	: 108.5
tolerance degree	: +- 4.0

RATED SPEED	
rack travel mm	: 10.80
Rated speed rpm	: 945
Tolerance 1/min	: +- 5

rack travel mm	: 4.00
Rated speed rpm	: 995
Tolerance 1/min	: +- 5

rack travel mm	: 0.85
Tolerance mm	: +- 0.55
Rated speed rpm	: 1050

rack travel mm	: 4.00
Rated speed rpm	: 1000
Tolerance 1/min	: +- 15

LOW IDLE

control lever position degree	: 88.0
tolerance degree	: +- 4.0

Control lever difference Grad	: 20.5
tolerance degree	: +- 6.0

Setting point w/out bumper spring

Rated speed rpm	: 100
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CRT mm min.	: > 19.00
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Testing:

Rated speed rpm : 425
rack travel mm : 8.90
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 11.85
Tolerance mm : \pm 0.05

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 119.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 425
Rack travel in mm : 8.90
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 32.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.06.97
Test oil : ISO 4113
Combination No. : 0 402 066 708
Injection pump
Pump designation : PES6P120A120RS3358
EP type number : 0 412 026 784
Governor
Governor design. : RSV475...1150P2A619
Governor no. : 0 421 833 522

Cust. part No. : 3283019

Customer-spec. information
Customer : CDC
Motor : 6BTA-590 ELITE
Power KW : 136.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5

Overflow quantity
min. l/h : 100
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 6.75
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 11.60
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 150.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 470

Rack travel in mm : 5.30
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 25.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Spread

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 4.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150

Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 150.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever

position degree : 106.0

tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 10.60

Rated speed rpm : 1195

Tolerance 1/min : \pm 5

rack travel mm : 4.00

Rated speed rpm : 1300

Tolerance 1/min : \pm 15

rack travel mm : 0.85

Tolerance mm : \pm 0.55

Rated speed rpm : 1400

rack travel mm : 4.00

Rated speed rpm : 1310

Tolerance 1/min : \pm 15

LOW IDLE

control lever

position degree : 85.0

tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 470

rack travel mm : 4.80

Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 470
rack travel mm : 5.30
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 610
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 11.60
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 11.65
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 11.65
Tolerance mm : \pm 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 8.50
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 11.00
Tolerance mm : \pm 0.20

Pressure hPa : 560
rack travel mm : 9.60
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 167.0

Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 12.0
Check tolerance
cm³/1000S. : 16.0

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 165.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 470
Rack travel in mm : 5.30
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.06.97
Test oil : ISO 4113
Combination No. : 0 402 076 748
Injection pump
Pump designation : PES6P110A720RS3305
: -1
EP type number : 0 412 016 742
Governor
Governor design. : RSV300...1100P1A555
Governor no. : 0 421 833 379

Cust. part No. : 9271058

Customer-spec. information
Customer : LIEBHERR
Motor : D 926 TI
Power KW : 210.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 130
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 207.5
Tolerance bar : ± 1.5

G21

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.25
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 165.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.5

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 400

Rack travel in mm : 4.40
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 36.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 5.5

Speed

Tolerance
cm³/1000 strokes : 4.5

Check tolerance
cm³/1000S. : 7.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Aneroid pressure
hPa : 1100
Del. quantity
cm³/1000 strokes : 165.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.5
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 108.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 10.25
Rated speed rpm : 1040
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1095
Tolerance 1/min : \pm 15

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1260

rack travel mm : 4.00
Rated speed rpm : 1100
Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 78.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 3.90
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 400
rack travel mm : 4.40
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 510
Tolerance 1/min : +- 30

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 11.25
Tolerance mm : +- 0.05

Rated speed rpm : 600
rack travel mm : 11.25
Tolerance mm : +- 0.10

Rated speed rpm : 500
rack travel mm : 11.30
Tolerance mm : +- 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 550
Pressure hPa : 1100
rack travel mm : 11.25
Tolerance mm : +- 0.05

Rated speed rpm : 550
Pressure hPa : -
rack travel mm : 9.75
Tolerance mm : +- 0.10

MEASUREMENT

Rated speed rpm : 550
Pressure hPa : 650
rack travel mm : 11.00
Tolerance mm : +- 0.05

Pressure hPa : 550
rack travel mm : 10.25
Tolerance mm : +- 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1100
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 186.0
Tolerance
cm³/1000 strokes : +- 2.0

Check tolerance
cm³/1000S. : +- 5.0

Aneroid pressure

hPa : -
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 152.5
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 3.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : +- 0.50
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : +- 10.0
Check tolerance
cm³/1000S. : +- 14.0

LOW IDLE

Rated speed rpm : 400
Rack travel in mm : 4.40
Tolerance mm : +- 0.10
Del. quantity
cm³/1000 strokes : 36.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 5.5
Speed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.06.97
Test oil : ISO 4113

Combination No. : 0 402 076 748A

Injection pump
Pump designation : PES6P110A720RS3305
: -1
EP type number : 0 412 016 742

Governor
Governor design. : RSV300...1100P1A555
Governor no. : 0 421 833 379

Cust. part No. : 9271058

Customer-spec. information
Customer : LIEBHERR
Motor : D 926 TI
Power KW : 210.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 130
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 207.0
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.25
Tolerance mm : ± 0.05

Del. quantity cm3/1000 strokes	: 165.0
<hr/>	
Tolerance cm3/1000 strokes	: ± 1.0
<hr/>	
Check tolerance cm3/1000S.	: ± 3.5
<hr/>	
Spreed	
<hr/>	
Tolerance cm3/1000 strokes	: 4.0
<hr/>	
Check tolerance cm3/1000S.	: 7.5
<hr/>	
Rated speed rpm	: 400
Rack travel in mm	: 4.40
Tolerance mm	: ± 0.10
Del. quantity cm3/1000 strokes	: 36.0
Tolerance cm3/1000 strokes	: ± 3.0
Check tolerance cm3/1000S.	: ± 5.5
Spreed	
Tolerance cm3/1000 strokes	: 4.5
Check tolerance cm3/1000S.	: 7.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	: - 3
Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	: ± 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1000
Aneroid pressure hPa	: 1100
Del. quantity cm3/1000 strokes	: 165.0

Tolerance cm3/1000 strokes	: ± 1.0
Check tolerance cm3/1000S.	: ± 3.5
Spreed	
Tolerance cm3/1000 strokes	: 4.0
Check tolerance cm3/1000S.	: 7.5

CONTROL LEVER

control lever position degree	: 108.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 10.25
Rated speed rpm	: 1025
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1095
Tolerance 1/min	: ± 15

rack travel mm	: 0.85
Tolerance mm	: ± 0.55
Rated speed rpm	: 1260

rack travel mm	: 4.00
Rated speed rpm	: 1100
Tolerance 1/min	: ± 15

LOW IDLE

control lever position degree	: 78.0
tolerance degree	: ± 4.0

Setting point w/out bumper spring

Rated speed rpm	: 400
rack travel mm	: 3.90
Tolerance mm	: ± 0.10

Testing:

Rated speed rpm	: 400
rack travel mm	: 4.40
Tolerance mm	: ± 0.10

rack travel mm	: 2.00
Rated speed rpm	: 510
Tolerance 1/min	: ± 30

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 11.25
Tolerance mm : \pm 0.05

Rated speed rpm : 600
rack travel mm : 11.25
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 11.30
Tolerance mm : \pm 0.10

**ANEROID/ALTITUDE
COMPENSATOR TEST****SETTING**

Rated speed rpm : 550
Pressure hPa : 1100
rack travel mm : 11.25
Tolerance mm : \pm 0.05

Rated speed rpm : 550
Pressure hPa : -
rack travel mm : 9.75
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 550

Pressure hPa : 650
rack travel mm : 11.00
Tolerance mm : \pm 0.05

Pressure hPa : 550
rack travel mm : 10.25
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1100
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 186.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Aneroid pressure
hPa : -

Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 152.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 400

Rack travel in mm : 4.40
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 36.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.5
Speed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.06.97

Test oil : ISO 4113

Combination No. : 0 402 678 857

Injection pump

Pump designation : PE8P120A320LS7911

EP type number : 0 412 628 926

Governor

Governor design. : RSV550...1050POA679

Governor no. : 0 421 833 598

Cust. part No. : 027 074 6502

Customer-spec. information

Customer : MB-NFZ

Motor : OM442LA, Euro

Power KW : 320.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Tolerance bar : ± 0.1

Overflow quantity

min. l/h : 110

Tolerance l/h : ± 10.0

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 5.25

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 20.50

Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3

: - 5- 4- 1

Phasing : 0-45-90-135-180

: -225-270-315

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10

Check

tolerance °NW : ± 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 14.50
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 230.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 550

Rack travel in mm : 4.40
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050

Aneroid pressure
hPa : 1100

Del. quantity
cm³/1000 strokes : 230.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1085
Tolerance 1/min : \pm 1
rack travel mm : 13.50

Rated speed rpm : 1125
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 1087
Tolerance 1/min : \pm 1
rack travel mm : 13.50

Rated speed rpm : 1127
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 1089
Tolerance 1/min : \pm 1
rack travel mm : 13.50

Rated speed rpm : 1129
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 1091
Tolerance 1/min : \pm 1
rack travel mm : 13.50

Rated speed rpm : 1131
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 1093
Tolerance 1/min : \pm 1
rack travel mm : 13.50

Rated speed rpm : 1133
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 1095
Tolerance 1/min : \pm 1
rack travel mm : 13.50

Rated speed rpm : 1135
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

LOW IDLE

Testing:

Rated speed rpm : 550
rack travel mm : 4.40
Tolerance mm : \pm 0.10

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 14.50
Tolerance mm : \pm 0.05

Rated speed rpm : 600
rack travel mm : 15.00

H01

Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1100
rack travel mm : 14.50
Tolerance mm : \pm 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 11.10
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 500
rack travel mm : 12.00
Tolerance mm : \pm 0.20

Pressure hPa : 600
rack travel mm : 13.00
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1100
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 256.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 166.0
Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm3/1000S. : +- 5.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 15.00
Tolerance mm : +- 0.20
Del. quantity
cm3/1000 strokes : 250.0
Tolerance
cm3/1000 strokes : +- 10.0
Check tolerance
cm3/1000S. : +- 14.0

LOW IDLE

Rated speed rpm : 550

Rack travel in mm : 4.40
Tolerance mm : +- 0.10
Del. quantity
cm3/1000 strokes : 19.0
Tolerance
cm3/1000 strokes : +- 3.0
Check tolerance
cm3/1000S. : +- 6.0
Speed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.06.97

Test oil : ISO 4113

Combination No. : 0 402 736 862

Injection pump
Pump designation : PES6P110A120RS7214
EP type number : 0 412 716 805

Governor
Governor design. : RQV350...1200PA964
: -30K
Governor no. : 0 421 815 432

Cust. part No. : 3282469

Customer-spec. information
Customer : CUMMINS
Motor : 6CTA-A
Power KW : 213.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5

Overflow quantity
min. l/h : 120
Tolerance l/h : ± 5.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 23.0
Tolerance bar : ± 1.0

Prestroke mm : 4.40
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 14.75
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 192.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.60
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 30.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 5.0

Spreed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1260

Rack travel in mm : 16.50
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 192.5

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

H04

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 66.0
tolerance degree : + 4.0

control lever
position degree : 122.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 13.20
Rated speed rpm : 1250
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1405
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 67.0
tolerance degree : + 4.0

control lever
position degree : 15.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 275

CRT mm min. : > 7.10

Testing:

Rated speed rpm : 350
rack travel mm : 5.60
Tolerance mm : + 0.10

Rated speed rpm : 423

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 14.75

Tolerance mm : \pm 0.05

Rated speed rpm : 650
 rack travel mm : 12.80
 Tolerance mm : \pm 0.20

Rated speed rpm : 1200
 rack travel mm : 14.30
 Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1100
 Pressure hPa : 1200
 rack travel mm : 14.75
 Tolerance mm : \pm 0.05

Rated speed rpm : 1100
 Pressure hPa : -
 rack travel mm : 8.00
 Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1100

Pressure hPa : 785
 rack travel mm : 13.00
 Tolerance mm : \pm 0.20

Pressure hPa : 335
 rack travel mm : 9.65
 Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
 Rated speed rpm : $<$ 290

Check
 speed 1/min : $>$ 80
 Check
 speed 1/min : $<$ 300

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : 1200
 Rated speed rpm : 650
 Del. quantity
 cm³/1000 strokes : 184.0

Tolerance
 cm³/1000 strokes : \pm 3.0
 Check tolerance
 cm³/1000S. : \pm 6.0
 Spreed
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

Aneroid pressure

hPa : -
 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 92.0
 Tolerance
 cm³/1000 strokes : \pm 2.0
 Check tolerance
 cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Set starting CRT at K-cam.

Rated speed rpm : 100
 rack travel mm : 11.20
 Tolerance mm : \pm 0.50
 Del. quantity
 cm³/1000 strokes : 155.0
 Tolerance
 cm³/1000 strokes : \pm 20.0
 Check tolerance
 cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 5.60
 Tolerance mm : \pm 0.10
 Del. quantity
 cm³/1000 strokes : 30.0
 Tolerance
 cm³/1000 strokes : \pm 3.0
 Check tolerance
 cm³/1000S. : \pm 5.0
 Spreed
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.06.97
Test oil : ISO 4113

Combination No. : 0 401 496 002

Injection pump
Pump designation : PE6R130/720RS1503
EP type number : 0 411 436 001

Governor
Governor design. : RE31
Governor no. : 0 421 890 201

Cust. part No. :

Customer-spec. information
Customer : IVECO-FRANCE
Motor : 8210.42.5000

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 7.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Check
tolerance °NW : ± 0.40

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 950
Uact V : 3.218
Del. quantity
cm³/1000 strokes : 279.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Spræd
Tolerance
cm³/1000 strokes : 12.0
Check tolerance
cm³/1000S. : 16.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 750
Uact V : 3.218
Del. quantity
cm³/1000 strokes : 293.0
Tolerance
cm³/1000 strokes : +/- 6.0
Check tolerance
cm³/1000S. : +/- 10.0

Rated speed rpm : 550
Uact V : 2.300
Del. quantity
cm³/1000 strokes : 189.0
Tolerance
cm³/1000 strokes : +/- 4.5
Check tolerance
cm³/1000S. : +/- 9.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.260
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.120
Del. quantity
cm³/1000 strokes : 24.0
Tolerance
cm³/1000 strokes : \pm 3.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000s. : 10.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.700
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000s. : \pm 20.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.06.97
Test oil : ISO 4113

Combination No. : 0 401 846 529

Injection pump
Pump designation : PE6P120A320RS3186
EP type number : 0 411 826 756

Governor
Governor design. : RQV250...1025PA921
: -4
Governor no. : 0 421 813 787

Cust. part No. : 422719-P05 V. 06/92

Customer-spec. information
Customer : VOLVO-TRUCK
Motor : TD102F (Q)
Power KW : 220.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration
damper
(RoBo diaphragm) : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 046

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

H10

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 11.45
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 198.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 250

Rack travel in mm : 4.30
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : \pm 2.5

Check tolerance
cm³/1000S. : \pm 5.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 7.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1080
guide sleeve
travel mm : 8.40
Tolerance mm : \pm 0.10

Rated speed rpm : 250
guide sleeve
travel mm : 1.25
Tolerance mm : \pm 0.05

Rated speed rpm : 900
guide sleeve
travel mm : 6.50
Tolerance mm : \pm 0.10

Rated speed rpm : 430
guide sleeve
travel mm : 3.65
Tolerance mm : \pm 0.15

Rated speed rpm : 700
guide sleeve
travel mm : 6.50
Tolerance mm : \pm 0.10

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1080

Rack travel in mm : 16.50
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 198.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 62.0
tolerance degree : \pm 4.0

control lever
position degree : 117.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 10.40
Rated speed rpm : 1060
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1125
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : +- 0.50
Rated speed rpm : 1250

LOW IDLE

control lever
position degree : 65.0
tolerance degree : +- 4.0

control lever
position degree : 8.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 5.70

Testing:

Rated speed rpm : 250
rack travel mm : 4.30
Tolerance mm : +- 0.10

Rated speed rpm : 300

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 11.45
Tolerance mm : +- 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 11.45
Tolerance mm : +- 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 8.90
Tolerance mm : +- 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 510
rack travel mm : 2.20
Tolerance mm : +- 0.20

Pressure hPa : 100
rack travel mm : 0.25
Tolerance mm : +- 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 700
Del. quantity
cm3/1000 strokes : 144.0
Tolerance
cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000S. : +- 4.0

LOW IDLE

Rated speed rpm : 250

Rack travel in mm : 4.30
Tolerance mm : +- 0.10

Del. quantity
cm3/1000 strokes : 19.0
Tolerance
cm3/1000 strokes : +- 2.5
Check tolerance
cm3/1000S. : +- 5.0

Speed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.06.97
Test oil : ISO 4113
Combination No. : 0 402 036 756
Injection pump
Pump designation : PES6P120A720/3LS3255
: -3
EP type number : 0 412 026 774

Governor
Governor design. : RQ300/1000PA813-19
Governor no. : 0 421 801 561

Cust. part No. : 51.11103-7316

Customer-spec. information
Customer : MAN
Motor : D2866LF05
Power KW : 272.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.75
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 15.00
Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 15.15
Tolerance mm : ± 0.05

Rated speed rpm : 300

Rack travel in mm : 5.00
 Tolerance mm : + 0.10
 Del. quantity
 cm³/1000 strokes : 20.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0
 Speed
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1059
 guide sleeve
 travel mm : 6.53
 Tolerance mm : + 0.10

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.79
 Tolerance mm : + 0.10

Rated speed rpm : 1000
 guide sleeve
 travel mm : 6.20
 Tolerance mm : + 0.10

Rated speed rpm : 810
 guide sleeve
 travel mm : 6.05
 Tolerance mm : + 0.10

Rated speed rpm : 394
 guide sleeve
 travel mm : 4.07
 Tolerance mm : + 0.10

Rated speed rpm : 500
 guide sleeve
 travel mm : 6.00
 Tolerance mm : + 0.10

Rated speed rpm : 1240
 guide sleeve
 travel mm : 11.50
 Tolerance mm : + 0.50

Rated speed rpm : 840
 guide sleeve
 travel mm : 6.15

Tolerance mm : + 0.10

GUIDE SLEEVE POSITION

control lever
 position degree : 109
 Rated speed rpm : 550

Rack travel in mm : 20.00
 Tolerance mm : + 0.80

RATED SPEED

rack travel mm : 14.10
 Rated speed rpm : 1053
 Tolerance 1/min : + 8

rack travel mm : 4.00
 Rated speed rpm : 1180
 Tolerance 1/min : + 15

rack travel mm : 0.50
 Tolerance mm : + 0.50
 Rated speed rpm : 1300

LOW IDLE

control lever
 position degree : 254.0
 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : > 6.50

Testing:

Rated speed rpm : 300
 rack travel mm : 5.00
 Tolerance mm : + 0.10

rack travel mm : 2.00
 Rated speed rpm : 380
 Tolerance 1/min : + 20

TORQUE CONTROL

Rated speed rpm : 700
 rack travel mm : 15.15
 Tolerance mm : + 0.05

Rated speed rpm : 1000

rack travel mm : 15.15
Tolerance mm : +- 0.05

Rated speed rpm : 700
rack travel mm : 8.00
Tolerance mm : +- 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 15.15
Tolerance mm : +- 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 12.10
Tolerance mm : +- 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 470
rack travel mm : 14.20
Tolerance mm : +- 0.20

Pressure hPa : 110
rack travel mm : 12.35
Tolerance mm : +- 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 1000
Del. quantity
cm3/1000 strokes : 244.0
Tolerance
cm3/1000 strokes : +- 3.0
Check tolerance
cm3/1000S. : +- 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm3/1000 strokes : 94.0
Tolerance
cm3/1000 strokes : +- 5.0
Check tolerance
cm3/1000S. : +- 8.0
Speed
Tolerance
cm3/1000 strokes : 10.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 139.0
Tolerance
cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000S. : +- 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm3/1000 strokes : 220.0
Tolerance
cm3/1000 strokes : +- 10.0
Check tolerance
cm3/1000S. : +- 14.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 5.00
Tolerance mm : +- 0.10
Del. quantity
cm3/1000 strokes : 20.0
Tolerance
cm3/1000 strokes : +- 3.0
Check tolerance
cm3/1000S. : +- 6.0
Speed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.06.97
Test oil : ISO 4113

Combination No. : 0 402 640 838

Injection pump
Pump designation : PE12P120A520LS7829
: -1
EP type number : 0 412 620 827

Governor
Governor design. : RQV300...1150PA1039
: -1K
Governor no. : 0 421 815 315

Cust. part No. : 3-7226

Customer-spec. information
Customer : MAN
Motor : D2842LE401
Power kW : 735.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 075

H17

Outside diameter : 8.0
x inside diameter : 2.5
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.55
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 12-1A- 5- 9A- 8
: - 3A- 4-11A- 10
: - 2A- 6

Phasing : 0-45-60-105-120
: -165-180-225-240
: -285-300-345
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark
Tolerance : + 0.10
Check
tolerance °NW : + 0.75

Barrel no. : 12

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 13.85
Tolerance mm : + 0.05

Del. quantity cm3/1000 strokes	: 305.0
Tolerance cm3/1000 strokes	: +- 1.0
Check tolerance cm3/1000S.	: +- 4.0
Spread	
Tolerance cm3/1000 strokes	: 5.0
Check tolerance cm3/1000S.	: 9.0

Rated speed rpm	: 300
Rack travel in mm	: 6.80
Tolerance mm	: +- 0.10
Del. quantity cm3/1000 strokes	: 45.0
Tolerance cm3/1000 strokes	: +- 5.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1206
guide sleeve travel mm	: 10.42
Tolerance mm	: +- 0.25

Rated speed rpm	: 300
guide sleeve travel mm	: 2.24
Tolerance mm	: +- 0.25

Rated speed rpm	: 795
guide sleeve travel mm	: 6.88
Tolerance mm	: +- 0.25

Rated speed rpm	: 329
guide sleeve travel mm	: 2.75
Tolerance mm	: +- 0.25

Rated speed rpm	: 379
guide sleeve travel mm	: 3.53
Tolerance mm	: +- 0.25

Rated speed rpm	: 450
guide sleeve travel mm	: 4.21
Tolerance mm	: +- 0.25

Rated speed rpm	: 1450
guide sleeve travel mm	: 13.50
Tolerance mm	: +- 0.50

GUIDE SLEEVE POSITION

control lever position degree	: - 1
Rated speed rpm	: 1280

Rack travel in mm	: 12.80
Tolerance mm	: +- 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1150
Aneroid pressure hPa	: 1300
Del. quantity cm3/1000 strokes	: 305.0
Tolerance cm3/1000 strokes	: +- 1.0
Check tolerance cm3/1000S.	: +- 4.0
Spread	
Tolerance cm3/1000 strokes	: 5.0
Check tolerance cm3/1000S.	: 9.0

CONTROL LEVER

control lever position degree	: 120.0
tolerance degree	: +- 4.0

RATED SPEED	
rack travel mm	: 12.80
Rated speed rpm	: 1203
Tolerance 1/min	: +- 8

rack travel mm	: 4.00
Rated speed rpm	: 1325
Tolerance 1/min	: +- 15

rack travel mm	: 0.50
Tolerance mm	: +- 0.50
Rated speed rpm	: 1450

LOW IDLE

control lever
position degree : 74.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 200
CRT mm min. : $>$ 8.30

Testing:

Rated speed rpm : 300
rack travel mm : 6.80
Tolerance mm : \pm 0.10

Rated speed rpm : 330

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 13.85
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 12.30
Tolerance mm : \pm 0.10

Rated speed rpm : 900
rack travel mm : 13.10
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 6.90
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 8.60
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1150
Pressure hPa : 1300
rack travel mm : 13.85
Tolerance mm : \pm 0.05

Rated speed rpm : 1150

H19

Pressure hPa : -
rack travel mm : 10.00
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 1150

Pressure hPa : 850
rack travel mm : 12.55
Tolerance mm : \pm 0.15

Pressure hPa : 400
rack travel mm : 10.35
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 240

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1300
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 257.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. : 14.0

Aneroid pressure
hPa : 1300
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 277.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Delivery for shutoff assemblies
(refer to cam sequence).

Arbitrary delivery for standard plunger
barrel assemblies.

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 0.1
Tolerance
cm³/1000 strokes : ± 0.1

Delivery for shutoff assemblies
(refer to cam sequence).
Arbitrary delivery for standard plunger
barrel assemblies.

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : ± 10.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 170.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000s. : ± 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 110.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000s. : ± 14.0

LOW IDLE

Delivery for standard plunger/barrel
assemblies.
Zero delivery for shutoff assemblies
(refer to cam sequence).

Rated speed rpm : 300

Rack travel in mm : 6.80
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 45.0
Tolerance
cm³/1000 strokes : ± 5.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.06.97
Test oil : ISO 4113
Combination No. : 0 402 640 839
Injection pump
Pump designation : PE12P120A520LS7829
: -1
EP type number : 0 412 620 827
Governor
Governor design. : RQV300...1150PA1039K
Governor no. : 0 421 815 314

Cust. part No. : 3-7227

Customer-spec. information
Customer : MAN
Motor : D2842LE402
Power KW : 809.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Tolerance bar : ± 0.1
Test nozzle holder
assembly : 1 688 901 019
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 075

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 12-1A- 5- 9A- 8
: - 3A- 4-11A- 10
: - 2A- 6

Phasing : 0-45-60-105-120
: -165-130-225-240
: -285-300-345
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 12

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 14.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 338.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spreed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.80
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 45.0

Tolerance
cm³/1000 strokes : ± 5.0

Check tolerance
cm³/1000S. : ± 8.0

Spreed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1206
guide sleeve
travel mm : 10.43
Tolerance mm : ± 0.25

Rated speed rpm : 300
guide sleeve
travel mm : 2.24
Tolerance mm : ± 0.25

Rated speed rpm : 795
guide sleeve
travel mm : 6.88
Tolerance mm : ± 0.25

Rated speed rpm : 329
guide sleeve
travel mm : 2.75

Tolerance mm : ± 0.25

Rated speed rpm : 379
guide sleeve
travel mm : 3.53
Tolerance mm : ± 0.25

Rated speed rpm : 450
guide sleeve
travel mm : 4.21
Tolerance mm : ± 0.25

Rated speed rpm : 1450
guide sleeve
travel mm : 13.50
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1265

Rack travel in mm : 13.70
Tolerance mm : ± 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 338.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 120.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 13.50
Rated speed rpm : 1203
Tolerance 1/min : ± 8

rack travel mm : 4.00

Rated speed rpm : 1345
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1450

LOW IDLE

control lever
position degree : 75.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 200
CRT mm min. : $>$ 8.30

Testing:

Rated speed rpm : 300
rack travel mm : 6.80
Tolerance mm : \pm 0.10

Rated speed rpm : 330

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 14.55
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 13.30
Tolerance mm : \pm 0.10

Rated speed rpm : 900
rack travel mm : 14.10
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 6.90
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 8.10
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

H23

Rated speed rpm : 1150
Pressure hPa : 1500
rack travel mm : 14.55
Tolerance mm : \pm 0.05

Rated speed rpm : 1150
Pressure hPa : -
rack travel mm : 9.70
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 1150

Pressure hPa : 850
rack travel mm : 12.25
Tolerance mm : \pm 0.15

Pressure hPa : 400
rack travel mm : 10.05
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 240

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 298.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. : 14.0

Aneroid pressure
hPa : 1500
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 315.0
Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm3/1000S. : +- 6.0

Delivery for shutoff assemblies
(refer to cam sequence).
Arbitrary delivery for standard plunger
barrel assemblies.

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 0.1
Tolerance
cm3/1000 strokes : +- 0.1
Check tolerance
cm3/1000S. : +- 0.1

Delivery for shutoff assemblies
(refer to cam sequence).
Arbitrary delivery for standard plunger
barrel assemblies.

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 135.0
Tolerance
cm3/1000 strokes : +- 10.0
Check tolerance
cm3/1000S. : +- 10.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 170.0
Tolerance
cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000S. : +- 4.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 19.60
Tolerance mm : +- 1.40
Del. quantity
cm3/1000 strokes : 95.0

H24

Tolerance
cm3/1000 strokes : +- 10.0
Check tolerance
cm3/1000S. : +- 14.0

LOW IDLE

Delivery for standard plunger/barrel
assemblies.
Zero delivery for shutoff assemblies
(refer to cam sequence).

Rated speed rpm : 300

Rack travel in mm : 6.80
Tolerance mm : +- 0.10
Del. quantity
cm3/1000 strokes : 45.0
Tolerance
cm3/1000 strokes : +- 5.0
Check tolerance
cm3/1000S. : +- 8.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.06.97

Test oil : ISO 4113

Combination No. : 0 402 646 609

Injection pump

Pump designation : PE6P120A720RS7188

: -10

EP type number : 0 412 626 924

Governor

Governer design. : RQV200...950PA725

: -11

Governer no. : 0 421 814 033

Cust. part No. : 1340418

Customer-spec. information

Customer : SCANIA

Motor : DSC 11 36

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration
damper

(RoBo diaphragm) : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5

Tolerance bar : ± 0.1

Overflow quantity

min. l/h : 230

Tolerance l/h : ± 20.0

Test nozzle holde

assembly : 1 688 901 104

H25

Opening pressure

bar : 251.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.45

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 0.50

Firing order

: 1- 5- 3- 6- 2-

: 4

Phasing

: 0-60-120-180-240

: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Barrel no.

: 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.85

Tolerance mm : \pm 0.05

Del. quantity

cm³/1000 strokes : 252.0

Tolerance

cm³/1000 strokes : \pm 1.0

Check tolerance

cm³/1000S. : \pm 4.0

Speed

Tolerance

cm³/1000 strokes : 8.0

Check tolerance

cm³/1000S. : 12.0

Rated speed rpm : 250

Rack travel in mm : 4.70

Tolerance mm : \pm 0.10

Del. quantity

cm³/1000 strokes : 17.0

Tolerance

cm³/1000 strokes : \pm 3.0

Check tolerance

cm³/1000S. : \pm 6.0

Speed

Tolerance

cm³/1000 strokes : 4.0

Check tolerance

cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1150

Rack travel in mm : 9.50

Tolerance mm : \pm 2.50

H26

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700

Aneroid pressure

hPa : -

Del. quantity

cm³/1000 strokes : 252.0

Tolerance

cm³/1000 strokes : \pm 1.0

Check tolerance

cm³/1000S. : \pm 4.0

Speed

Tolerance

cm³/1000 strokes : 8.0

Check tolerance

cm³/1000S. : 12.0

CONTROL LEVER

control lever

position degree : 62.0

tolerance degree : \pm 4.0

control lever

position degree : 116.0

tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 12.80

Rated speed rpm : 995

Tolerance 1/min : \pm 5

Check

speed 1/min : \pm 10

rack travel mm : 4.00

Rated speed rpm : 1125

Tolerance 1/min : \pm 15

Check

speed 1/min : \pm 20

rack travel mm : 0.50

Tolerance mm : \pm 0.50

Rated speed rpm : 1250

LOW IDLE

control lever

position degree : 64.0

tolerance degree : \pm 4.0

control lever

position degree : 10.0

tolerance degree : \pm 4.0
Setting point w/out bumper spring

Rated speed rpm : 150
CRT mm min. : $>$ 6.00

Testing:

Rated speed rpm : 250
rack travel mm : 4.70
Tolerance mm : \pm 0.10

Rated speed rpm : 270

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 13.85
Tolerance mm : \pm 0.05

Rated speed rpm : 950
rack travel mm : 13.85
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 13.85
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.30
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 375
rack travel mm : 12.05
Tolerance mm : \pm 0.05

Pressure hPa : 185
rack travel mm : 11.00
Tolerance mm : \pm 0.15

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 950
Del. quantity
cm³/1000 strokes : 237.0
Tolerance
cm³/1000 strokes : \pm 4.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 115.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 9.30
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 125.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 250
Rack travel in mm : 4.70
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.06.97
Test oil : ISO 4113

Combination No. : 0 402 646 613

Injection pump
Pump designation : PE6P120A320RS7248
: -10W
EP type number : 0 412 626 908

Governor
Governor design. : RQ275/1150PA987
Governor no. : 0 421 801 578

Cust. part No. : 1278684/3

Customer-spec. information

Customer : DAF
Motor : RS 180 M
Power KW : 180.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 10.75
Tolerance mm : ± 0.05

Del. quantity cm3/1000 strokes	:	154.0
<hr/>		
Tolerance cm3/1000 strokes	: ±	1.0
<hr/>		
Check tolerance cm3/1000S.	: ±	4.0
<hr/>		
Spreed		
<hr/>		
Tolerance cm3/1000 strokes	:	5.0
<hr/>		
Check tolerance cm3/1000S.	:	9.0
<hr/>		

Rack travel in mm	:	4.90
Tolerance mm	: ±	0.10
Del. quantity cm3/1000 strokes	:	16.0
Tolerance cm3/1000 strokes	: ±	3.0
Check tolerance cm3/1000S.	: ±	6.0
Spreed		
Tolerance cm3/1000 strokes	:	8.0
Check tolerance cm3/1000S.	:	12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm guide sleeve travel mm	:	1205
Tolerance mm	: ±	0.10
<hr/>		
Rated speed rpm guide sleeve travel mm	:	275
Tolerance mm	: ±	1.95
<hr/>		
Rated speed rpm guide sleeve travel mm	:	1150
Tolerance mm	: ±	6.00
<hr/>		
Rated speed rpm guide sleeve travel mm	:	351
Tolerance mm	: ±	4.27

J02

Tolerance mm	: ±	0.10
<hr/>		
Rated speed rpm guide sleeve travel mm	:	440
Tolerance mm	: ±	6.00
<hr/>		
Rated speed rpm guide sleeve travel mm	:	1360
Tolerance mm	: ±	11.50
<hr/>		
Tolerance mm	: ±	0.50

GUIDE SLEEVE POSITION

control lever position degree	: -	1
Rated speed rpm	:	550
<hr/>		
Rack travel in mm	:	15.80
Tolerance mm	: ±	0.60

FULL LOAD DELIVERY AT FULL LOAD STOP

Aneroid pressure hPa	:	-
Del. quantity cm3/1000 strokes	:	154.0
Tolerance cm3/1000 strokes	: ±	1.0
Check tolerance cm3/1000S.	: ±	4.0
Spreed		
Tolerance cm3/1000 strokes	:	5.0
Check tolerance cm3/1000S.	:	9.0

CONTROL LEVER

control lever position degree	:	99.0
tolerance degree	: ±	4.0
<hr/>		
RATED SPEED rack travel mm	:	9.75
Rated speed rpm	:	1192
Tolerance 1/min	: ±	8
<hr/>		
rack travel mm	:	4.00
Rated speed rpm	:	1265
Tolerance 1/min	: ±	15
<hr/>		
rack travel mm	:	0.70
Tolerance mm	: ±	0.70
Rated speed rpm	:	1450

LOW IDLE

control lever
position degree : 74.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 175
CRT mm min. : $>$ 7.00

Testing:

Rated speed rpm : 275
rack travel mm : 4.90
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 340
Tolerance 1/min : \pm 20

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 10.75
Tolerance mm : \pm 0.05

Rated speed rpm : 1150
rack travel mm : 10.75
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1000
rack travel mm : 10.75
Tolerance mm : \pm 0.05

Rated speed rpm : 600
Pressure hPa : -
rack travel mm : 9.50
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 600
Pressure hPa : 300
rack travel mm : 10.45

J03

Tolerance mm : \pm 0.05
Pressure hPa : 240
rack travel mm : 10.00
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 122.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

LOW IDLE

Rack travel in mm : 4.90
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.06.97
Test oil : ISO 4113

Combination No. : 0 402 646 614

Injection pump
Pump designation : PE6P120A32ORS7248
: -10W

EP type number : 0 412 626 908

Governor
Governor design. : RQV275...1150PA986
Governor no. : 0 421 813 920

Cust. part No. : 1280137/3

Customer-spec. information
Customer : DAF
Motor : RS 180 M
Power KW : 180.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 130
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 10.75
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 154.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : 4.90
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 16.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1206
guide sleeve
travel mm : 8.24
Tolerance mm : \pm 0.25

Rated speed rpm : 275
guide sleeve
travel mm : 1.44
Tolerance mm : \pm 0.25

Rated speed rpm : 799
guide sleeve
travel mm : 5.21
Tolerance mm : \pm 0.25

Rated speed rpm : 315
guide sleeve
travel mm : 1.98
Tolerance mm : \pm 0.25

Rated speed rpm : 365
guide sleeve
travel mm : 2.52
Tolerance mm : \pm 0.25

Rated speed rpm : 450
guide sleeve
travel mm : 3.07
Tolerance mm : \pm 0.25

Rated speed rpm : 1500
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1350

Rack travel in mm : 9.70
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 154.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 118.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 9.75

Rated speed rpm : 1192
 Tolerance 1/min : +- 5
 rack travel mm : 4.00
 Rated speed rpm : 1290
 Tolerance 1/min : +- 15
 rack travel mm : 0.70
 Tolerance mm : +- 0.70
 Rated speed rpm : 1450

LOW IDLE

control lever
 position degree : 82.0
 tolerance degree : +- 4.0
 Setting point w/out bumper spring
 Rated speed rpm : 175
 CRT mm min. : > 7.40
 Testing:
 Rated speed rpm : 275
 rack travel mm : 4.90
 Tolerance mm : +- 0.10
 Rated speed rpm : 340

TORQUE CONTROL
 Rated speed rpm : 1000
 rack travel mm : 10.75
 Tolerance mm : +- 0.05
 Rated speed rpm : 1150
 rack travel mm : 10.75
 Tolerance mm : +- 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
 Pressure hPa : 1000
 rack travel mm : 10.75
 Tolerance mm : +- 0.05
 Rated speed rpm : 600
 Pressure hPa : 300
 rack travel mm : 10.45

Tolerance mm : +- 0.05

MEASUREMENT

Rated speed rpm : 600
 Pressure hPa : -
 rack travel mm : 9.50
 Tolerance mm : +- 0.10
 Pressure hPa : 240
 rack travel mm : 10.00
 Tolerance mm : +- 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : -
 Rated speed rpm : 600
 Del. quantity
 cm3/1000 strokes : 122.5
 Tolerance
 cm3/1000 strokes : +- 1.0
 Check tolerance
 cm3/1000S. : +- 4.0

LOW IDLE

Rated speed rpm : 275
 Rack travel in mm : 4.90
 Tolerance mm : +- 0.10
 Del. quantity
 cm3/1000 strokes : 16.0
 Tolerance
 cm3/1000 strokes : +- 3.0
 Check tolerance
 cm3/1000S. : +- 6.0
 Spreed
 Tolerance
 cm3/1000 strokes : 8.0
 Check tolerance
 cm3/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.06.97
Test oil : ISO 4113

Combination No. : 0 402 646 619

Injection pump
Pump designation : PE6P120A72ORS7188
: -100
EP type number : 0 412 626 925

Governor
Governor design. : RQV200...950PA725
: -11
Governor no. : 0 421 814 033

Cust. part No. : 1340417

Customer-spec. information
Customer : SCANIA
Motor : DSC 11 35

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration
damper
(RoBo diaphragm) : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 104

Opening pressure
bar : 251.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 250

Rack travel in mm : 4.70
Tolerance mm : +- 0.10

Del. quantity
cm3/1000 strokes : 17.0
Tolerance
cm3/1000 strokes : +- 3.0

Check tolerance
cm3/1000S. : +- 6.0

Spread
Tolerance
cm3/1000 strokes : 4.0
Check tolerance
cm3/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1150

Rack travel in mm : 9.50
Tolerance mm : +- 2.50

CONTROL LEVER

control lever
position degree : 62.0
tolerance degree : +- 4.0

control lever
position degree : 116.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 11.70
Rated speed rpm : 995
Tolerance 1/min : +- 5

Check
speed 1/min : +- 10

rack travel mm : 4.00
Rated speed rpm : 1110
Tolerance 1/min : +- 15

Check
speed 1/min : +- 20

rack travel mm : 0.50
Tolerance mm : +- 0.50

Rated speed rpm : 1250

LOW IDLE

control lever
position degree : 64.0
tolerance degree : +- 4.0

control lever
position degree : 10.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 150

CRT mm min. : > 6.00

Testing:

Rated speed rpm : 250
rack travel mm : 4.70
Tolerance mm : +- 0.10

Rated speed rpm : 250

TORQUE CONTROL

Rated speed rpm : 950
rack travel mm : 12.75
Tolerance mm : +- 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 12.75
Tolerance mm : +- 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.30
Tolerance mm : +- 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 185
rack travel mm : 11.00

Tolerance mm : \pm 0.15
Pressure hPa : 375
rack travel mm : 12.05
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 950
Del. quantity
cm³/1000 strokes : 209.0
Tolerance
cm³/1000 strokes : \pm 4.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 115.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 9.30
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 125.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 250
Rack travel in mm : 4.70
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.06.97
Test oil : ISO 4113

Combination No. : 0 402 646 624

Injection pump
Pump designation : PE6P120A320RS7299
EP type number : 0 412 626 885

Governor
Governor design. : RQV275...1000PA1075K
Governor no. : 0 421 815 356

Cust. part No. : 1280155

Customer-spec. information
Customer : DAF
Motor : WS 295 M
Power KW : 295.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 14.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 279.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : 4.80
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 17.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1046
guide sleeve
travel mm : 9.83
Tolerance mm : ± 0.20

Rated speed rpm : 275
guide sleeve
travel mm : 2.14
Tolerance mm : ± 0.15

Rated speed rpm : 689
guide sleeve
travel mm : 6.43
Tolerance mm : ± 0.25

Rated speed rpm : 284
guide sleeve
travel mm : 2.27

Tolerance mm : ± 0.25

Rated speed rpm : 334
guide sleeve
travel mm : 3.17
Tolerance mm : ± 0.25

Rated speed rpm : 390
guide sleeve
travel mm : 3.79
Tolerance mm : ± 0.25

Pated speed rpm : 1310
guide sleeve
travel mm : 13.50
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1135

Rack travel in mm : 13.60
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 980
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 279.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 121.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 13.45
Rated speed rpm : 1032

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 1160
 Tolerance 1/min : \pm 15
 rack travel mm : 0.70
 Tolerance mm : \pm 0.70
 Rated speed rpm : 1275

LOW IDLE

control lever
 position degree : 74.0
 tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 175
 CRT mm min. : $>$ 7.80

Testing:

Rated speed rpm : 275
 rack travel mm : 4.80
 Tolerance mm : \pm 0.10

Rated speed rpm : 275

TORQUE CONTROL

Rated speed rpm : 980
 rack travel mm : 14.35
 Tolerance mm : \pm 0.05

Rated speed rpm : 750
 rack travel mm : 13.70
 Tolerance mm : \pm 0.05

Rated speed rpm : 600
 rack travel mm : 12.80
 Tolerance mm : \pm 0.10

Rated speed rpm : 500
 rack travel mm : 12.50
 Tolerance mm : \pm 0.10

Rated speed rpm : 980
 rack travel mm : 14.50
 Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 980
 Pressure hPa : 1500
 rack travel mm : 14.35
 Tolerance mm : \pm 0.05

Rated speed rpm : 980
 Pressure hPa : -
 rack travel mm : 8.90
 Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 980

Pressure hPa : 840
 rack travel mm : 13.25
 Tolerance mm : \pm 0.05

Pressure hPa : 430
 rack travel mm : 10.40
 Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : -
 Rated speed rpm : 750
 Del. quantity
 cm³/1000 strokes : 284.0
 Tolerance
 cm³/1000 strokes : \pm 2.0
 Check tolerance
 cm³/1000S. : \pm 5.0
 Spread
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

Aneroid pressure
 hPa : -
 Rated speed rpm : 600
 Del. quantity
 cm³/1000 strokes : 172.0
 Tolerance
 cm³/1000 strokes : \pm 1.0
 Check tolerance
 cm³/1000S. : \pm 4.0

LOW IDLE

Rated speed rpm : 275
Rack travel in mm : 4.80
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.06.97
Test oil : ISO 4113

Combination No. : 0 402 646 630

Injection pump
Pump designation : PE6P120A720RS7302
: -10
EP type number : 0 412 626 928

Governor
Governor design. : RQ200/950PA745-6
Governor no. : 0 421 801 702

Cust. part No. : 1354204

Customer-spec. information
Customer : SCANIA
Motor : DS 11 78

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration
damper
(RoBo diaphragm) : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 104

Opening pressure
bar : 251.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm	:	700
<hr/>		
Rack travel in mm	:	13.35
Tolerance mm	:	+ 0.05
<hr/>		
Del. quantity cm ³ /1000 strokes	:	171.0
<hr/>		
Tolerance cm ³ /1000 strokes	:	+ 1.0
<hr/>		
Check tolerance cm ³ /1000S.	:	+ 4.0
<hr/>		
Speed		
<hr/>		
Tolerance cm ³ /1000 strokes	:	8.0
<hr/>		
Check tolerance cm ³ /1000S.	:	12.0
<hr/>		

Rated speed rpm	:	250
<hr/>		
Rack travel in mm	:	4.50
Tolerance mm	:	+ 0.10
Del. quantity cm ³ /1000 strokes	:	16.0
Tolerance cm ³ /1000 strokes	:	+ 3.0
Check tolerance cm ³ /1000S.	:	+ 6.0
<hr/>		
Speed		
<hr/>		
Tolerance cm ³ /1000 strokes	:	4.0
Check tolerance cm ³ /1000S.	:	8.0
<hr/>		

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	1005
guide sleeve travel mm	:	4.88
Tolerance mm	:	+ 0.15
<hr/>		
Rated speed rpm	:	250
guide sleeve travel mm	:	1.41
Tolerance mm	:	+ 0.20
<hr/>		
Rated speed rpm	:	930

guide sleeve travel mm	:	4.50
Tolerance mm	:	+ 0.10

Rated speed rpm	:	350
guide sleeve travel mm	:	2.88
Tolerance mm	:	+ 0.10

Rated speed rpm	:	520
guide sleeve travel mm	:	4.50
Tolerance mm	:	+ 0.10

Rated speed rpm	:	1045
guide sleeve travel mm	:	5.50
Tolerance mm	:	+ 0.10

Rated speed rpm	:	1360
guide sleeve travel mm	:	11.50
Tolerance mm	:	+ 0.50

GUIDE SLEEVE POSITION

control lever position degree	:	104
Rated speed rpm	:	600
<hr/>		
Rack travel in mm	:	16.50
Tolerance mm	:	+ 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	700
Aneroid pressure hPa	:	-
Del. quantity cm ³ /1000 strokes	:	171.0
Tolerance cm ³ /1000 strokes	:	+ 1.0
Check tolerance cm ³ /1000S.	:	+ 4.0
Speed		
<hr/>		
Tolerance cm ³ /1000 strokes	:	8.0
Check tolerance cm ³ /1000S.	:	12.0

CONTROL LEVER

control lever position degree	:	45.0
tolerance degree	:	+ 4.0

control lever
position degree : 99.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 12.30
Rated speed rpm : 995
Tolerance 1/min : \pm 5
Check
speed 1/min : \pm 10

rack travel mm : 4.00
Rated speed rpm : 1125
Tolerance 1/min : \pm 15
Check
speed 1/min : \pm 20

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1250

LOW IDLE

control lever
position degree : 64.0
tolerance degree : \pm 4.0

control lever
position degree : 10.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 150
CRT mm min. : $>$ 5.80

Testing:

Rated speed rpm : 250
rack travel mm : 4.50
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 335
Tolerance 1/min : \pm 20

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 13.35
Tolerance mm : \pm 0.05

Rated speed rpm : 950
rack travel mm : 13.35

Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 13.35
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 11.20
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 210
rack travel mm : 11.90
Tolerance mm : \pm 0.15

Pressure hPa : 400
rack travel mm : 13.05
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 950
Del. quantity
cm³/1000 strokes : 172.0
Tolerance
cm³/1000 strokes : \pm 4.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 122.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 275.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 250
Rack travel in mm : 4.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.06.97
Test oil : ISO 4113
Combination No. : 0 402 646 660
Injection pump
Pump designation : PE6P120A32ORS7248
: -10V
EP type number : 0 412 626 946
Governor
Governor design. : RQV275...1150PA986
Governor no. : 0 421 813 920

Cust. part No. : 1300727/1

Customer spec. information
Customer : DAF
Motor : RT 170 L
Power KW : 170.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 75
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

J18

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 10.60
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 146.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : 4.70
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 17.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1210
guide sleeve
travel mm : 8.26
Tolerance mm : \pm 0.15

Rated speed rpm : 275
guide sleeve
travel mm : 1.44
Tolerance mm : \pm 0.20

Rated speed rpm : 805
guide sleeve
travel mm : 5.21

Tolerance mm : \pm 0.25

Rated speed rpm : 309
guide sleeve
travel mm : 1.89
Tolerance mm : \pm 0.25

Rated speed rpm : 359
guide sleeve
travel mm : 2.41
Tolerance mm : \pm 0.25

Rated speed rpm : 450
guide sleeve
travel mm : 2.99
Tolerance mm : \pm 0.25

Rated speed rpm : 1500
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1350

Rack travel in mm : 9.60
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 146.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 118.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 9.60
Rated speed rpm : 1200
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1290
Tolerance 1/min : +- 15

rack travel mm : 0.70
Tolerance mm : +- 0.70
Rated speed rpm : 1450

LOW IDLE

control lever
position degree : 82.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 175

CRT mm min. : > 7.00

Testing:

Rated speed rpm : 275
rack travel mm : 4.70
Tolerance mm : +- 0.10

Rated speed rpm : 330

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 10.60
Tolerance mm : +- 0.05

Rated speed rpm : 1150
rack travel mm : 10.60
Tolerance mm : +- 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1000
rack travel mm : 10.60
Tolerance mm : +- 0.05

Rated speed rpm : 600
Pressure hPa : -

J20

rack travel mm : 9.50
Tolerance mm : +- 0.10

MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 250
rack travel mm : 10.30
Tolerance mm : +- 0.05

Pressure hPa : 190
rack travel mm : 9.80
Tolerance mm : +- 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -

Rated speed rpm : 600

Del. quantity
cm3/1000 strokes : 122.5
Tolerance

cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000s. : +- 4.0

LOW IDLE

Rated speed rpm : 275

Rack travel in mm : 4.70
Tolerance mm : +- 0.10

Del. quantity
cm3/1000 strokes : 17.0
Tolerance

cm3/1000 strokes : +- 3.0
Check tolerance
cm3/1000s. : +- 6.0

Speed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.06.97
Test oil : ISO 4113

Combination No. : 0 402 646 668

Injection pump
Pump designation : PE6P120A32ORS7412
EP type number : 0 412 626 953

Governor
Governor design. : RQV275...1000PA1278
: -1K
Governor no. : 0 421 815 510

Cust. part No. : 1310220/1

Customer-spec. information

Customer : DAF
Motor : XF 280 M
Power KW : 280.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 145
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

J21

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 12.60

Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 303.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : 3.90
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 17.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1062
guide sleeve
travel mm : 10.04
Tolerance mm : \pm 0.15

Rated speed rpm : 275
guide sleeve
travel mm : 2.04
Tolerance mm : \pm 0.20

Rated speed rpm : 697
guide sleeve
travel mm : 6.48
Tolerance mm : \pm 0.25

Rated speed rpm : 400

guide sleeve
travel mm : 3.92
Tolerance mm : \pm 0.25

Rated speed rpm : 1310
guide sleeve
travel mm : 13.50
tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1171

Rack travel in mm : 10.70
Tolerance mm : \pm 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 303.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 118.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 11.35
Rated speed rpm : 1050
Tolerance 1/min : \pm 5
Check
speed 1/min : \pm 10

rack travel mm : 4.00
Rated speed rpm : 1150
Tolerance 1/min : \pm 15
Check
speed 1/min : \pm 20

rack travel mm : 0.50

Tolerance mm : \pm 0.50
Rated speed rpm : 1275

LOW IDLE

control lever
position degree : 71.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 175
CRT mm min. : $>$ 6.50

Testing:

Rated speed rpm : 275
rack travel mm : 3.90
Tolerance mm : \pm 0.10

Rated speed rpm : 300

TORQUE CONTROL

Rated speed rpm : 750
rack travel mm : 12.60
Tolerance mm : \pm 0.05

Rated speed rpm : 980
rack travel mm : 12.35
Tolerance mm : \pm 0.10

Rated speed rpm : 900
rack travel mm : 12.50
Tolerance mm : \pm 0.10

Rated speed rpm : 700
rack travel mm : 12.30
Tolerance mm : \pm 0.10

Rated speed rpm : 600
rack travel mm : 11.80
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 11.45
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
rack travel mm : 12.35
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 775
Pressure hPa : 1500
rack travel mm : 12.65
Tolerance mm : \pm 0.05

Rated speed rpm : 775
Pressure hPa : -
rack travel mm : 8.50
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 775

Pressure hPa : 450
rack travel mm : 12.10
Tolerance mm : \pm 0.05

Pressure hPa : 170
rack travel mm : 9.90
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 980
Del. quantity
cm³/1000 strokes : 272.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 184.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

LOW IDLE

Rated speed rpm : 275

Rack travel in mm : 3.90
Tolerance mm : \pm 0.10

Del. quantity
cm3/1000 strokes : 17.0

Tolerance
cm3/1000 strokes : \pm 3.0

Check tolerance
cm3/1000S. : \pm 6.0

Spreed
Tolerance

cm3/1000 strokes : 8.0

Check tolerance
cm3/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.06.97

Test oil : ISO 4113

Combination No. : 0 402 646 673

Injection pump

Pump designation : PE6P120A320RS7412

EP type number : 0 412 626 953

Governor

Governer design. : RQV275...1000PA1300K

Governer no. : 0 421 815 527

Cust. part No. : 1315099

Customer-spec. information

Customer : DAF

Motor : XF 250 M

Power KW : 250.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

Overflow quantity

min. l/h : 150

Tolerance l/h : ± 20.0

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.45

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10

Check

tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 12.00

Tolerance mm : ± 0.05

Del. quantity cm ³ /1000 strokes	: 289.0
Tolerance cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000S.	: ± 4.0
Speed	
Tolerance cm ³ /1000 strokes	: 5.0
Check tolerance cm ³ /1000S.	: 9.0

Rated speed rpm	: 275
Rack travel in mm	: 3.90
Tolerance mm	: ± 0.10
Del. quantity cm ³ /1000 strokes	: 17.0
Tolerance cm ³ /1000 strokes	: ± 3.0
Check tolerance cm ³ /1000S.	: ± 6.0
Speed	
Tolerance cm ³ /1000 strokes	: 8.0
Check tolerance cm ³ /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1072
guide sleeve travel mm	: 10.16
Tolerance mm	: ± 0.15
Rated speed rpm	: 275
guide sleeve travel mm	: 2.04
Tolerance mm	: ± 0.20
Rated speed rpm	: 701
guide sleeve travel mm	: 6.52
Tolerance mm	: ± 0.25
Rated speed rpm	: 400

guide sleeve travel mm	: 3.92
Tolerance mm	: ± 0.25

Rated speed rpm	: 1310
guide sleeve travel mm	: 13.50
Tolerance mm	: ± 0.50

GUIDE SLEEVE POSITION

control lever position degree	: - 1
Rated speed rpm	: 1181

Rack travel in mm	: 10.00
Tolerance mm	: ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 750
Aneroid pressure hPa	: 1500
Del. quantity cm ³ /1000 strokes	: 289.0
Tolerance cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000S.	: ± 4.0
Speed	
Tolerance cm ³ /1000 strokes	: 5.0
Check tolerance cm ³ /1000S.	: 9.0

CONTROL LEVER

control lever position degree	: 118.0
tolerance degree	: ± 4.0

RATED SPEED	
rack travel mm	: 10.50
Rated speed rpm	: 1045
Tolerance 1/min	: ± 5
Check speed 1/min	: ± 10

rack travel mm	: 4.00
Rated speed rpm	: 1140
Tolerance 1/min	: ± 15
Check speed 1/min	: ± 20

rack travel mm	: 0.70
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Tolerance mm : \pm 0.70
Rated speed rpm : 1275

LOW IDLE

control lever
position degree : 70.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 175
CRT mm min. : $>$ 6.50

Testing:

Rated speed rpm : 275
rack travel mm : 3.90
Tolerance mm : \pm 0.10

Rated speed rpm : 310

TORQUE CONTROL

Rated speed rpm : 750
rack travel mm : 12.00
Tolerance mm : \pm 0.05

Rated speed rpm : 980
rack travel mm : 11.50
Tolerance mm : \pm 0.10

Rated speed rpm : 900
rack travel mm : 11.70
Tolerance mm : \pm 0.10

Rated speed rpm : 700
rack travel mm : 12.00
Tolerance mm : \pm 0.10

Rated speed rpm : 600
rack travel mm : 11.40
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 10.90
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
rack travel mm : 11.50
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 775
Pressure hPa : 1500
rack travel mm : 12.00
Tolerance mm : \pm 0.05

Rated speed rpm : 775
Pressure hPa : -
rack travel mm : 8.30
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 775
Pressure hPa : 460
rack travel mm : 11.00
Tolerance mm : \pm 0.05

Pressure hPa : 250
rack travel mm : 9.30
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 980
Del. quantity
cm³/1000 strokes : 250.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 188.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

LOW IDLE

Rated speed rpm : 275

Rack travel in mm : 3.90

Tolerance mm : \pm 0.10

Del. quantity

cm³/1000 strokes : 17.0

Tolerance

cm³/1000 strokes : \pm 3.0

Check tolerance

cm³/1000S. : \pm 6.0

Speed

Tolerance

cm³/1000 strokes : 8.0

Check tolerance

cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.06.97
Test oil : ISO 4113

Combination No. : 0 402 646 742

Injection pump
Pump designation : PE6P120A32OLS7837-2
EP type number : 0 412 626 943

Governor
Governor design. : RQ300/1100PA1272
Governor no. : 0 421 801 804

Cust. part No. : 0270743002

Customer-spec. information
Customer : MB-NFZ
Motor : OM441 LA
Power KW : 228.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 120
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 6

CRT ZERO POSITION

Rack travel in mm : 12.50

Tolerance mm : \pm 0.10

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 12.50
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 191.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.60
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 16.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Spread

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1146
guide sleeve
travel mm : 6.54
Tolerance mm : \pm 0.15

Rated speed rpm : 300

guide sleeve
travel mm : 2.24
Tolerance mm : \pm 0.20

Rated speed rpm : 1100
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 429
guide sleeve
travel mm : 4.97
Tolerance mm : \pm 0.10

Rated speed rpm : 550
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 1340
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : 109
Rated speed rpm : 650

Rack travel in mm : 20.00
Tolerance mm : \pm 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
Aneroid pressure
hPa : 600

Del. quantity
cm³/1000 strokes : 191.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 94.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 12.70
Rated speed rpm : 1150
Tolerance 1/min : + 5
Check
speed 1/min : + 13

rack travel mm : 4.00
Rated speed rpm : 1260
Tolerance 1/min : + 15
Check
speed 1/min : + 20

rack travel mm : 0.75
Tolerance mm : + 0.75
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 72.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200
CRT mm min. : > 9.00

Testing:

Rated speed rpm : 300
rack travel mm : 5.60
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 400
Tolerance 1/min : + 20

TORQUE CONTROL

Rated speed rpm : 600
rack travel mm : 12.50
Tolerance mm : + 0.10

Rated speed rpm : 1100
rack travel mm : 13.70
Tolerance mm : + 0.10

Rated speed rpm : 700
rack travel mm : 13.70
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

2-stage LDA setting

Rated speed rpm : 400
Pressure hPa : 600

MEASUREMENT

Pressure hPa : 350
rack travel mm : -1.20
Tolerance mm : + 0.15

Pressure hPa : 200
rack travel mm : -2.20
Tolerance mm : + 0.20

Pressure hPa : 975
rack travel mm : 0.50
Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 1100
Del. quantity
cm³/1000 strokes : 214.0
Tolerance
cm³/1000 strokes : + 1.5
Check tolerance
cm³/1000s. : + 4.5
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

Aneroid pressure
hPa : 1500
Rated speed rpm : 700

Del. quantity
cm³/1000 strokes : 216.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 205.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 5.60
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.06.97
Test oil : ISO 4113

Combination No. : 0 402 646 763

Injection pump
Pump designation : PE6P120A320LS7834
: -10
EP type number : 0 412 626 853

Governor
Governor design. : RQV300...1050PA1065
: -2
Governor no. : 0 421 814 135

Cust. part No. : 0260743702

Customer-spec. information
Customer : MB-NFZ
Motor : OM401 LA
Power KW : 230.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 110
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5

K05

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-60-120-180-240
: -300

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 14.80
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 230.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.20
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 13.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1108
guide sleeve
travel mm : 9.82
Tolerance mm : \pm 0.25

Rated speed rpm : 300
guide sleeve
travel mm : 1.13
Tolerance mm : \pm 0.25

Rated speed rpm : 370
guide sleeve
travel mm : 2.00
Tolerance mm : \pm 0.25

Rated speed rpm : 420
guide sleeve
travel mm : 2.49

Tolerance mm : \pm 0.25

Rated speed rpm : 750
guide sleeve
travel mm : 4.87
Tolerance mm : \pm 0.25

Rated speed rpm : 1310
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1200

Rack travel in mm : 13.80
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 230.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 104.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 13.80
Rated speed rpm : 1095
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1195
Tolerance 1/min : \pm 15

rack travel mm : 0.75
Tolerance mm : \pm 0.75

Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 68.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : $>$ 8.10

Testing:

Rated speed rpm : 300
rack travel mm : 5.20
Tolerance mm : \pm 0.10

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 550
rack travel mm : 14.80
Tolerance mm : \pm 0.05

Rated speed rpm : 1050
rack travel mm : 14.80
Tolerance mm : \pm 0.10

Rated speed rpm : 700
rack travel mm : 14.80
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1000
rack travel mm : 14.80
Tolerance mm : \pm 0.05

Rated speed rpm : 400
Pressure hPa : -
rack travel mm : 10.50
Tolerance mm : \pm 0.15

MEASUREMENT

Rated speed rpm : 400

K07

Pressure hPa : 400
rack travel mm : 12.90
Tolerance mm : \pm 0.20

Pressure hPa : 600
rack travel mm : 14.15
Tolerance mm : \pm 0.20

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 227.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 129.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 5.20
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.09.94
Test oil : ISO 4113

Combination No. : 0 402 646 904

Injection pump
Pump designation : PE6P120A720RS7126
: -10
EP type number : 0 412 626 929

Governor
Governor design. : RQV300...900PA795
: -10
Governor no. : 0 421 813 846

Cust. part No. : 1305081

Customer-spec. information
Customer : SCANIA
Motor : DS11

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration
damper
(RoBo diaphragm) : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holde
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 14.75
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 235.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spreed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 4.50
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

Speed
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 970

Rack travel in mm : 16.50
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 235.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 50.0
tolerance degree : \pm 4.0

control lever
position degree : 108.0

K10

tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 13.10
Rated speed rpm : 945
Tolerance 1/min : \pm 5
Check
speed 1/min : \pm 10

rack travel mm : 4.00
Rated speed rpm : 1045
Tolerance 1/min : \pm 15
Check
speed 1/min : \pm 20

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1150

LOW IDLE

control lever
position degree : 77.0
tolerance degree : \pm 4.0

control lever
position degree : 19.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 100
CRT mm min. : > 10.00

Testing:

Rated speed rpm : 300
rack travel mm : 4.50
Tolerance mm : \pm 0.10

Rated speed rpm : 300
rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 14.15
Tolerance mm : \pm 0.05

Rated speed rpm : 900
rack travel mm : 14.15
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 14.15
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.70
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 510
rack travel mm : 13.05
Tolerance mm : \pm 0.05

Pressure hPa : 250
rack travel mm : 11.20
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 224.0
Tolerance
cm³/1000 strokes : \pm 4.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 152.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 300.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 4.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.06.97
Test oil : ISO 4113

Combination No. : 0 402 648 783

Injection pump
Pump designation : PE8P120A320LS7906-1
EP type number : 0 412 628 925

Governor
Governor design. : RQ750PA1326
Governor no. : 0 421 801 815

Cust. part No. : 04222 3938 KY

Customer-spec. information
Customer : KHD
Motor : BF8M1015/C
Power KW : 318.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 033

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 200
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values — —

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 8- 7- 2- 6- 5
: - 4- 3- 1

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 315.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.60
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 365.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Del. quantity
cm³/1000 strokes : 20.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Spreed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 715
guide sleeve
travel mm : 4.23
Tolerance mm : \pm 0.15

Rated speed rpm : 610
guide sleeve
travel mm : 0.72
Tolerance mm : \pm 0.25

Rated speed rpm : 900
guide sleeve
travel mm : 14.89
Tolerance mm : \pm 0.25

Rated speed rpm : 862

guide sleeve
travel mm : 12.00
Tolerance mm : \pm 0.25

Rated speed rpm : 930
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 365.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 110.0
tolerance degree : \pm 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 750
rack travel mm : 11.60

Rated speed rpm : 780
Tolerance 1/min : \pm 4
rack travel mm : 4.50

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 900

Rated speed rpm : 751
rack travel mm : 11.60

Rated speed rpm : 781
Tolerance 1/min : \pm 4
rack travel mm : 4.50

rack travel mm : 0.50
Tolerance mm : \pm 0.50

Rated speed rpm : 752
rack travel mm : 11.60

Rated speed rpm : 782
Tolerance 1/min : \pm 4
rack travel mm : 4.50

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 900

Rated speed rpm : 753
rack travel mm : 11.60

Rated speed rpm : 783
Tolerance 1/min : \pm 4
rack travel mm : 4.50

rack travel mm : 0.50
Tolerance mm : \pm 0.50

Rated speed rpm : 754
rack travel mm : 11.60

Rated speed rpm : 784
Tolerance 1/min : \pm 4
rack travel mm : 4.50

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 900

Rated speed rpm : 755
rack travel mm : 11.60

Rated speed rpm : 785
Tolerance 1/min : \pm 4
rack travel mm : 4.50

rack travel mm : 0.50
Tolerance mm : \pm 0.50

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 12.60
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 560

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 580

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 200.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000s. : \pm 19.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.06.97
Test oil : ISO 4113

Combination No. : 0 402 648 794

Injection pump
Pump designation : PE8P120A320LS7890
EP type number : 0 412 628 913

Governor
Governor design. : RQV350...900PA1266
Governor no. : 0 421 814 171

Cust. part No. : 0260740502

Customer-spec. information
Customer : MB-NFZ
Motor : OM442 LA
Power KW : 327.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 100
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3
 : - 5- 4- 1

Phasing : 0-45-90-135-180
 : -225-270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 8

CRT ZERO POSITION

Rack travel in mm : 10.20
Tolerance mm : ± 0.10

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 10.20
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 209.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 4.00
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 14.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 958
guide sleeve
travel mm : 7.30
Tolerance mm : \pm 0.15

Rated speed rpm : 350
guide sleeve
travel mm : 1.69
Tolerance mm : \pm 0.20

Rated speed rpm : 770
guide sleeve
travel mm : 4.89
Tolerance mm : \pm 0.25

Rated speed rpm : 520
guide sleeve
travel mm : 3.23
Tolerance mm : \pm 0.25

Rated speed rpm : 1073
guide sleeve
travel mm : 10.00
Tolerance mm : \pm 0.25

Rated speed rpm : 1160
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1032

Rack travel in mm : 13.50
Tolerance mm : \pm 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
Aneroid pressure
hPa : 500
Del. quantity
cm³/1000 strokes : 209.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 118.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 11.50
Rated speed rpm : 945
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1025

Tolerance 1/min : +- 15
rack travel mm : 0.75
Tolerance mm : +- 0.75
Rated speed rpm : 1200

LOW IDLE

control lever
position degree : 65.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 250
CRT mm min. : > 6.00

Testing:

Rated speed rpm : 350
rack travel mm : 4.00
Tolerance mm : +- 0.10

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 600
rack travel mm : 10.20
Tolerance mm : +- 0.05

Rated speed rpm : 880
rack travel mm : 12.50
Tolerance mm : +- 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

2-stage LDA setting

Rated speed rpm : 600
Pressure hPa : 500

MEASUREMENT

Pressure hPa : 250
rack travel mm : -0.50
Tolerance mm : +- 0.05

Pressure hPa : 800
rack travel mm : 0.80
Tolerance mm : +- 0.05

Pressure hPa : 900
rack travel mm : 1.20
Tolerance mm : +- 0.10

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 270

Check
speed 1/min : > 80
Check
speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 880
Del. quantity
cm3/1000 strokes : 238.0
Tolerance
cm3/1000 strokes : +- 3.0
Check tolerance
cm3/1000S. : +- 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 178.0
Tolerance
cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000S. : +- 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm3/1000 strokes : 270.0
Tolerance
cm3/1000 strokes : +- 20.0
Check tolerance
cm3/1000S. : +- 24.0

LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 4.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 14.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.06.97
Test oil : ISO 4113

Combination No. : 0 402 648 967

Injection pump
Pump designation : PE8P120A32OLS7871
EP type number : 0 412 628 877

Governor
Governor design. : RQV300...1050PA1078
: -1K
Governor no. : 0 421 815 361

Cust. part No. : 9275447

Customer-spec. information
Customer : LIEBHERR
Motor : D 9408 TI
Power KW : 400.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 8- 7- 2- 6
: - 3- 5- 4

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.75
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 300.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.10
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 23.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Spread
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1117
guide sleeve
travel mm : 10.38
Tolerance mm : \pm 0.25

Rated speed rpm : 300
guide sleeve
travel mm : 1.69
Tolerance mm : \pm 0.25

Rated speed rpm : 746
guide sleeve
travel mm : 6.20
Tolerance mm : \pm 0.25

Rated speed rpm : 353
guide sleeve
travel mm : 2.45
Tolerance mm : \pm 0.25

Rated speed rpm : 403
guide sleeve
travel mm : 3.18
Tolerance mm : \pm 0.25

Rated speed rpm : 450
guide sleeve
travel mm : 3.66

Tolerance mm : \pm 0.25

Rated speed rpm : 1320
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1185

Rack travel in mm : 10.80
Tolerance mm : \pm 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1600

Del. quantity
cm³/1000 strokes : 300.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 119.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 11.75
Rated speed rpm : 1110
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1200
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 70.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 200
CRT mm min. : $>$ 6.60

Testing:

Rated speed rpm : 300
rack travel mm : 5.10
Tolerance mm : \pm 0.10

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.75
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 10.50
Tolerance mm : \pm 0.10

Rated speed rpm : 550
rack travel mm : 10.50
Tolerance mm : \pm 0.10

Rated speed rpm : 700
rack travel mm : 11.40
Tolerance mm : \pm 0.10

Rated speed rpm : 950
rack travel mm : 12.60
Tolerance mm : \pm 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 550
Pressure hPa : 1600
rack travel mm : 10.50
Tolerance mm : \pm 0.10

Rated speed rpm : 550
Pressure hPa : -
rack travel mm : 9.15

Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 550

Pressure hPa : 675
rack travel mm : 10.35
Tolerance mm : \pm 0.05

Pressure hPa : 575
rack travel mm : 9.75
Tolerance mm : \pm 0.15

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1600
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 298.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : 1600
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 299.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 242.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 9.15
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 160.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 5.10
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.06.97
Test oil : ISO 4113

Combination No. : 0 402 648 967A

Injection pump
Pump designation : FE8P120A320LS7871
EP type number : 0 412 628 877

Governor
Governor design. : RQV300...1050PA1078
: -1K
Governor no. : 0 421 815 361

Cust. part No. : 9275448

Customer-spec. information
Customer : LIEBHERR
Motor : D 9408 TI
Power KW : 400.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 8- 7- 2- 6
: - 3- 5- 4

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.75
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 300.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.10
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 23.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spread
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1117
guide sleeve
travel mm : 10.38
Tolerance mm : + 0.25

Rated speed rpm : 300
guide sleeve
travel mm : 1.69
Tolerance mm : + 0.25

Rated speed rpm : 746
guide sleeve
travel mm : 6.20
Tolerance mm : + 0.25

Rated speed rpm : 353
guide sleeve
travel mm : 2.45
Tolerance mm : + 0.25

Rated speed rpm : 403
guide sleeve
travel mm : 3.18
Tolerance mm : + 0.25

Rated speed rpm : 450
guide sleeve
travel mm : 3.66

Tolerance mm : + 0.25

Rated speed rpm : 1320
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1185

Rack travel in mm : 10.80
Tolerance mm : + 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1600

Del. quantity
cm³/1000 strokes : 300.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 119.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 11.75
Rated speed rpm : 1110
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1200
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 70.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 200
CRT mm min. : $>$ 6.60

Testing:

Rated speed rpm : 300
rack travel mm : 5.10
Tolerance mm : \pm 0.10

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.75
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 10.50
Tolerance mm : \pm 0.10

Rated speed rpm : 550
rack travel mm : 10.50
Tolerance mm : \pm 0.10

Rated speed rpm : 700
rack travel mm : 11.40
Tolerance mm : \pm 0.10

Rated speed rpm : 950
rack travel mm : 12.60
Tolerance mm : \pm 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 550
Pressure hPa : 1600
rack travel mm : 10.50
Tolerance mm : \pm 0.10

Rated speed rpm : 550
Pressure hPa : -
rack travel mm : 9.15

Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 550

Pressure hPa : 675
rack travel mm : 10.35
Tolerance mm : \pm 0.05

Pressure hPa : 575
rack travel mm : 9.75
Tolerance mm : \pm 0.15

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1600
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 298.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : 1600
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 299.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 242.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 9.15
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 160.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 5.10
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.06.97
Test oil : ISO 4113

Combination No. : 0 402 670 809

Injection pump
Pump designation : PE12P120A320LS7807
: -2
EP type number : 0 412 620 812

Governor
Governor design. : RSV375...950POA535
: -5
Governor no. : 0 421 833 374

Cust. part No. : 022 074 8002

Customer-spec. information

Customer : MB-NFZ
Motor : OM 444 LA
Power KW : 493.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Overflow quantity
min. l/h : 160
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

K27

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 12- 1- 5- 9- 8
: - 3- 4- 11- 10
: - 2- 6- 7

Phasing : 0-45-60-105-120
: -165-180-225-240
: -285-300-345
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 12

BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 15.60
Tolerance mm : +- 0.10

Del. quantity
cm3/1000 strokes : 234.0

Tolerance
cm3/1000 strokes : +- 1.0

Check tolerance
cm3/1000S. : +- 4.0

Speed

Tolerance
cm3/1000 strokes : 6.0

Check tolerance
cm3/1000S. : 10.0

Rated speed rpm : 375

Rack travel in mm : 6.35
Tolerance mm : +- 0.15

Del. quantity
cm3/1000 strokes : 17.0

Tolerance
cm3/1000 strokes : +- 3.0

Check tolerance
cm3/1000S. : +- 6.0

Speed

Tolerance
cm3/1000 strokes : 8.0

Check tolerance
cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.85
Tolerance mm : +- 0.55

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 950

Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 234.0
Tolerance
cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000S. : +- 4.0
Speed
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 10.0

CONTROL LEVER

control lever
position degree : 78.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 14.60
Rated speed rpm : 995
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1075
Tolerance 1/min : +- 5

rack travel mm : 1.00
Tolerance mm : +- 0.70
Rated speed rpm : 1200

LOW IDLE

control lever
position degree : 68.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 13.00

Testing:

Rated speed rpm : 375
rack travel mm : 6.35
Tolerance mm : +- 0.15

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 950
rack travel mm : 15.60
Tolerance mm : \pm 0.10

Rated speed rpm : 600
rack travel mm : 15.60
Tolerance mm : \pm 0.10

**ANEROID/ALTITUDE
COMPENSATOR TEST****SETTING**

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 15.60
Tolerance mm : \pm 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 11.00
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 300
rack travel mm : 11.70
Tolerance mm : \pm 0.05

Pressure hPa : 500
rack travel mm : 13.80
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 246.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 137.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 230.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 375
Rack travel in mm : 6.35
Tolerance mm : \pm 0.15
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.06.97
Test oil : ISO 4113

Combination No. : 0 402 676 819

Injection pump
Pump designation : PE6P120A320RS7327
EP type number : 0 412 626 916

Governor
Governor design. : RSV275...1150P5A580
Governor no. : 0 421 833 436

Cust. part No. : 1241744/0

Customer-spec. information
Customer : DAF
Motor : RS 200 L AG
Power KW : 200.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 160
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 11.40
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.35
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 167.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : 4.70
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 16.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 6.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 167.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 113.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 10.35
Rated speed rpm : 1182

Tolerance 1/min : \pm 8

rack travel mm : 4.00
Rated speed rpm : 1275

Tolerance 1/min : \pm 15

rack travel mm : 0.85
Tolerance mm : \pm 0.55

Rated speed rpm : 1500

rack travel mm : 4.00
Rated speed rpm : 1285

Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 80.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 275
rack travel mm : 4.20

Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 275
rack travel mm : 4.70
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 575
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 11.35
Tolerance mm : \pm 0.05

Rated speed rpm : 1150
rack travel mm : 11.35
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1000
rack travel mm : 11.35
Tolerance mm : \pm 0.05

Rated speed rpm : 600
Pressure hPa : -
rack travel mm : 9.10
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 340
rack travel mm : 10.75
Tolerance mm : \pm 0.05

Pressure hPa : 200
rack travel mm : 9.70
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 117.0

Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

LOW IDLE

Rated speed rpm : 275

Rack travel in mm : 4.70
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.06.97
Test oil : ISO 4113

Combination No. : 0 402 676 823C

Injection pump
Pump designation : PE6P120A320LS7885-1
EP type number : 0 412 626 948

Governor
Governor design. : RSV400...1000P1A589
Governor no. : 0 421 833 449

Cust. part No. : 9881286

Customer-spec. information
Customer : LIEBHERR
Motor : D 9406 TI-E A3
Power KW : 258.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 6- 3- 5- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.75
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 265.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm3/1000S. : + 4.0

Speed

Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

Rated speed rpm : 400

Rack travel in mm : 5.00
Tolerance mm : + 0.10

Del. quantity
cm3/1000 strokes : 26.0

Tolerance
cm3/1000 strokes : + 3.0

Check tolerance
cm3/1000S. : + 6.0

Speed
Tolerance
cm3/1000 strokes : 6.0

Check tolerance
cm3/1000S. : 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900

Aneroid pressure
hPa : 1400

Del. quantity
cm3/1000 strokes : 265.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 4.0

Speed
Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 106.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.75
Rated speed rpm : 935
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1010
Tolerance 1/min : + 15

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1200

rack travel mm : 4.00
Rated speed rpm : 1030
Tolerance 1/min : + 15

LOW IDLE

control lever
position degree : 83.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 3.50
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 400
rack travel mm : 5.00
Tolerance mm : + 0.10

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 13.75
Tolerance mm : + 0.05

Rated speed rpm : 500
rack travel mm : 13.75
Tolerance mm : + 0.10

Rated speed rpm : 700
rack travel mm : 13.75
Tolerance mm : + 0.30

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1400
rack travel mm : 13.75
Tolerance mm : \pm 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 11.90
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 870
rack travel mm : 13.40
Tolerance mm : \pm 0.05

Pressure hPa : 740
rack travel mm : 12.50
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1400
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 280.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : 1400
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 272.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500

L07

Del. quantity
cm³/1000 strokes : 230.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 220.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 400

Rack travel in mm : 5.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 17.06.97
Test oil : ISO 4113

Combination No. : 0 402 678 831

Injection pump
Pump designation : PE8P120A320LS7901
EP type number : 0 412 628 918

Governor
Governor design. : RSV350...1050POA651
Governor no. : 0 421 833 568

Cust. part No. : 0270745602

Customer-spec. information
Customer : MB-NFZ
Motor : OM442LA
Power KW : 297.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 110
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3
 : - 5- 4- 1

Phasing : 0-45-90-135-180
 : -225-270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1030

Rack travel in mm : 13.40
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 210.0

Tolerance
cm³/1000 strokes : \pm 1.5

Check tolerance
cm³/1000S. : \pm 4.5

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.30

Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3

governor spring
pre-tension
click setting x : 3.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1030

Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 210.0

Tolerance
cm³/1000 strokes : \pm 1.5

Check tolerance
cm³/1000S. : \pm 4.5

L09

Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 94.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 12.40
Rated speed rpm : 1075
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1150
Tolerance 1/min : \pm 5

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 70.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 350
rack travel mm : 5.30
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 400
Tolerance 1/min : \pm 30

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 1030

rack travel mm : 13.40
Tolerance mm : \pm 0.05

Rated speed rpm : 600
rack travel mm : 13.70
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 13.70
Tolerance mm : \pm 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.35
Tolerance mm : \pm 0.15

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 250
rack travel mm : 9.70
Tolerance mm : \pm 0.15

Pressure hPa : 500
rack travel mm : 11.70
Tolerance mm : \pm 0.15

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 221.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500

L10

Del. quantity
cm³/1000 strokes : 143.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 240.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 5.30
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.06.97
Test oil : ISO 4113

Combination No. : 0 402 678 836

Injection pump
Pump designation : PE8P120A320LS7844
EP type number : 0 412 628 860

Governor
Governor design. : RSV550...1050POA672
Governor no. : 0 421 833 591

Cust. part No. : 0270746402

Customer-spec. information
Customer : MB-NFZ
Motor : OM442LA
Power KW : 370.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 225
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.00
Tolerance mm : ± 1.00

Firing order : 8- 7- 2- 6- 3
: - 5- 4- 1

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 15.60
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 270.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 550

Rack travel in mm : 4.00
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050

Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 270.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 88.0
tolerance degree : \pm 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1070
Tolerance 1/min : \pm 1
rack travel mm : 14.60

Rated speed rpm : 1110
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1200

Rated speed rpm : 1071
Tolerance 1/min : \pm 1
rack travel mm : 14.60

Rated speed rpm : 1111
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1200

Rated speed rpm : 1072
Tolerance 1/min : \pm 1
rack travel mm : 14.60

Rated speed rpm : 1112
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1200

Rated speed rpm : 1073
Tolerance 1/min : \pm 1
rack travel mm : 14.60

Rated speed rpm : 1113
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1200

Rated speed rpm : 1074
Tolerance 1/min : \pm 1
rack travel mm : 14.60

Rated speed rpm : 1114
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1200

Rated speed rpm : 1175
Tolerance 1/min : \pm 1
rack travel mm : 14.60

Rated speed rpm : 1115
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55

LOW IDLE

control lever
position degree : 70.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 550
rack travel mm : 4.00
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 570
Tolerance 1/min : \pm 30

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 15.60
Tolerance mm : \pm 0.05

Rated speed rpm : 600
rack travel mm : 15.60
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 450
Pressure hPa : 1200
rack travel mm : 15.60
Tolerance mm : \pm 0.10

Rated speed rpm : 450
Pressure hPa : -
rack travel mm : 9.75
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 450
Pressure hPa : 600
rack travel mm : 12.20
Tolerance mm : \pm 0.15

Pressure hPa : 800
rack travel mm : 14.10
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200

Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 287.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 162.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 260.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 550
Rack travel in mm : 4.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.04.97
Test oil : ISO 4113

Combination No. : 0 402 746 606A

Injection pump
Pump designation : PES6P110A720RS7406
EP type number : 0 412 716 810

Governor
Governor design. : RQV300...1050PA1090
: -1K
Governor no. : 0 421 815 497

Cust. part No. : 9279608

Customer-spec. information
Customer : LIEBHERR
Motor : D 926 TI-E A3
Power kW : 230.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 125
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.00
Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.80
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 205.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm3/1000S. : + 4.0

Spreed

Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.20
Tolerance mm : + 0.10

Del. quantity
cm3/1000 strokes : 25.0

Tolerance
cm3/1000 strokes : + 3.0

Check tolerance
cm3/1000S. : + 6.0

Spreed
Tolerance
cm3/1000 strokes : 6.0

Check tolerance
cm3/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1102
guide sleeve
travel mm : 10.05
Tolerance mm : + 0.15

Rated speed rpm : 350
guide sleeve
travel mm : 1.86
Tolerance mm : + 0.20

Rated speed rpm : 749
guide sleeve
travel mm : 6.11
Tolerance mm : + 0.25

Rated speed rpm : 480
guide sleeve
travel mm : 3.75
Tolerance mm : + 0.25

Rated speed rpm : 1330
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1180

Rack travel in mm : 12.80
Tolerance mm : + 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1600
Del. quantity
cm3/1000 strokes : 205.0
Tolerance
cm3/1000 strokes : + 1.0
Check tolerance
cm3/1000S. : + 4.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 116.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.80
Rated speed rpm : 1090
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1195
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 71.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 250

CRT mm min. : > 7.40

Testing:

Rated speed rpm : 350

rack travel mm : 5.20

Tolerance mm : \pm 0.10

Rated speed rpm : 420

TORQUE CONTROL

Rated speed rpm : 1050

rack travel mm : 13.80

Tolerance mm : \pm 0.05

Rated speed rpm : 500

rack travel mm : 10.90

Tolerance mm : \pm 0.15

Rated speed rpm : 800

rack travel mm : 12.70

Tolerance mm : \pm 0.15

Rated speed rpm : 950

rack travel mm : 13.35

Tolerance mm : \pm 0.10

Rated speed rpm : 600

rack travel mm : 11.45

Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1050

Pressure hPa : 1600

rack travel mm : 13.80

Tolerance mm : \pm 0.05

Rated speed rpm : 1050

Pressure hPa : -

rack travel mm : 10.55

Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 1050

Pressure hPa : 940

rack travel mm : 13.00

Tolerance mm : \pm 0.05

Pressure hPa : 670

rack travel mm : 11.50

Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1600

Rated speed rpm : 500

Del. quantity

cm³/1000 strokes : 194.0

Tolerance

cm³/1000 strokes : \pm 3.0

Check tolerance

cm³/1000S. : \pm 6.0

Aneroid pressure

hPa : 1600

Rated speed rpm : 800

Del. quantity

cm³/1000 strokes : 201.0

Tolerance

cm³/1000 strokes : \pm 3.0

Check tolerance

cm³/1000S. : \pm 6.0

Aneroid pressure

hPa : -

Rated speed rpm : 500

Del. quantity

cm³/1000 strokes : 184.0

Tolerance

cm³/1000 strokes : \pm 1.0

Check tolerance

cm³/1000S. : \pm 4.0

Speed

Tolerance

cm³/1000 strokes : 8.0

Check tolerance

cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

rack travel mm : 10.60

Tolerance mm : \pm 0.20

Del. quantity

cm³/1000 strokes : 175.0

Tolerance

cm³/1000 strokes : \pm 10.0

Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 350
Rack travel in mm : 5.20
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.06.97
Test oil : ISO 4113

Combination No. : 0 402 746 606D

Injection pump
Pump designation : PES6P110A72ORS7406
EP type number : 0 412 716 810

Governor
Governor design. : RQV300...1050PA1090
 : -1K
Governor no. : 0 421 815 497

Cust. part No. : 9881520

Customer-spec. information
Customer : LIEBHERR
Motor : D 926 TI-E A3
Power KW : 240.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 125
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.00
Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6- 2-
 : 4

Phasing : 0-60-120-180-240
 : -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 14.80
Tolerance mm : ± 0.05

Del. quantity
cm3/1000 strokes : 234.0

Tolerance
cm3/1000 strokes : ± 1.0

Check tolerance
cm3/1000S. : +- 4.0

Spreed

Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

Rated speed rpm : 500

Rack travel in mm : 5.10
Tolerance mm : +- 0.10
Del. quantity
cm3/1000 strokes : 16.0
Tolerance
cm3/1000 strokes : +- 3.0
Check tolerance
cm3/1000S. : +- 6.0
Spreed
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1102
guide sleeve
travel mm : 10.05
Tolerance mm : +- 0.15

Rated speed rpm : 350
guide sleeve
travel mm : 1.86
Tolerance mm : +- 0.20

Rated speed rpm : 749
guide sleeve
travel mm : 6.11
Tolerance mm : +- 0.25

Rated speed rpm : 480
guide sleeve
travel mm : 3.75
Tolerance mm : +- 0.25

Rated speed rpm : 1330
guide sleeve
travel mm : 13.50
Tolerance mm : +- 0.50

L20

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1179

Rack travel in mm : 12.80
Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
Aneroid pressure
hPa : 1600
Del. quantity
cm3/1000 strokes : 234.0
Tolerance
cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000S. : +- 4.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 113.0
tolerance degree : +- 4.0

RATED SPEED
rack travel mm : 13.80
Rated speed rpm : 940
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1090
Tolerance 1/min : +- 15

rack travel mm : 0.50
Tolerance mm : +- 0.50
Rated speed rpm : 1150

LOW IDLE

control lever
position degree : 82.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 400

CRT mm min. : > 7.50

Testing:

Rated speed rpm : 500

rack travel mm : 5.10

Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 900

rack travel mm : 14.80

Tolerance mm : \pm 0.05

Rated speed rpm : 500

rack travel mm : 13.50

Tolerance mm : \pm 0.15

Rated speed rpm : 800

rack travel mm : 14.70

Tolerance mm : \pm 0.15

Rated speed rpm : 700

rack travel mm : 14.20

Tolerance mm : \pm 0.10

Rated speed rpm : 600

rack travel mm : 13.85

Tolerance mm : \pm 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 900

Pressure hPa : 1600

rack travel mm : 14.80

Tolerance mm : \pm 0.05

Rated speed rpm : 900

Pressure hPa : -

rack travel mm : 12.10

Tolerance mm : \pm 0.15

MEASUREMENT

Rated speed rpm : 900

Pressure hPa : 1100

rack travel mm : 13.70

Tolerance mm : \pm 0.10

Pressure hPa : 900
rack travel mm : 12.40
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1600

Rated speed rpm : 500

Del. quantity

cm³/1000 strokes : 266.0

Tolerance

cm³/1000 strokes : \pm 3.0

Check tolerance

cm³/1000S. : \pm 6.0

Aneroid pressure

hPa : 1600

Rated speed rpm : 800

Del. quantity

cm³/1000 strokes : 245.0

Tolerance

cm³/1000 strokes : \pm 3.0

Check tolerance

cm³/1000S. : \pm 6.0

Aneroid pressure

hPa : -

Rated speed rpm : 500

Del. quantity

cm³/1000 strokes : 225.0

Tolerance

cm³/1000 strokes : \pm 1.0

Check tolerance

cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

rack travel mm : 11.60

Tolerance mm : \pm 0.20

Del. quantity

cm³/1000 strokes : 225.0

Tolerance

cm³/1000 strokes : \pm 10.0

Check tolerance

cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 500
Rack travel in mm : 5.10
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000s. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.06.97
Test oil : ISO 4113

Combination No. : 0 402 746 606F

Injection pump
Pump designation : PES6P110A720RS7406
EP type number : 0 412 716 810

Governor
Governor design. : RQV300...1050PA1090
: -1K
Governor no. : 0 421 815 497

Cust. part No. : 9882886

Customer-spec. information
Customer : LIEBHERR
Motor : D 926 TI-E A3
Power KW : 234.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 125
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.00
Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 14.80
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 234.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 400

Rack travel in mm : 5.10

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 16.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1102
guide sleeve
travel mm : 10.05
Tolerance mm : + 0.15

Rated speed rpm : 350
guide sleeve
travel mm : 1.86
Tolerance mm : + 0.20

Rated speed rpm : 749
guide sleeve
travel mm : 6.11
Tolerance mm : + 0.25

Rated speed rpm : 480
guide sleeve
travel mm : 3.75
Tolerance mm : + 0.25

Rated speed rpm : 1330
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1179

Rack travel in mm : 12.80
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
Aneroid pressure
hPa : 1600
Del. quantity
cm³/1000 strokes : 234.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 113.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 13.80
Rated speed rpm : 940
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1090
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1150

LOW IDLE

control lever
position degree : 82.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 300

CRT mm min. : > 7.50

Testing:

Rated speed rpm : 400
rack travel mm : 5.10
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 14.80
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 13.50
Tolerance mm : \pm 0.15

Rated speed rpm : 800
rack travel mm : 14.70
Tolerance mm : \pm 0.15

Rated speed rpm : 700
rack travel mm : 14.20
Tolerance mm : \pm 0.10

Rated speed rpm : 600
rack travel mm : 13.85
Tolerance mm : \pm 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 900
Pressure hPa : 1600
rack travel mm : 14.80
Tolerance mm : \pm 0.05

Rated speed rpm : 900
Pressure hPa : -
rack travel mm : 12.10
Tolerance mm : \pm 0.15

MEASUREMENT

Rated speed rpm : 900

Pressure hPa : 1100
rack travel mm : 13.70
Tolerance mm : \pm 0.10

Pressure hPa : 900
rack travel mm : 12.40
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1600
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 266.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : 1600
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 245.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 225.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 11.60
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 225.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 400
Rack travel in mm : 5.10
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.09.95
Test oil : ISO 4113

Combination No. : 0 402 746 959

Injection pump
Pump designation : PES6P120A720RS7292
: -1
EP type number : 0 412 726 939

Governor
Governor design. : RQV350...1150PA1104K
Governor no. : 0 421 815 368

Cust. part No. : 0250741402

Customer-spec. information
Customer : MB-NFZ
Motor : OM366LA
Power KW : 172.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 100
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

L27

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 3.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 14.40
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 280.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 350

Rack travel in mm : 6.00

Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 13.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1205
guide sleeve
travel mm : 9.35
Tolerance mm : ± 0.15

Rated speed rpm : 350
guide sleeve
travel mm : 1.53
Tolerance mm : ± 0.20

Rated speed rpm : 855
guide sleeve
travel mm : 5.56
Tolerance mm : ± 0.25

Rated speed rpm : 540

guide sleeve
travel mm : 3.09
Tolerance mm : ± 0.25

Rated speed rpm : 1480
guide sleeve
travel mm : 13.50
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1329

Rack travel in mm : 13.25
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 280.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 109.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 13.40
Rated speed rpm : 1195
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1300
Tolerance 1/min : ± 15

rack travel mm : 0.70
Tolerance mm : ± 0.70
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 65.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 250
CRT mm min. : $>$ 6.88

Testing:

Rated speed rpm : 350
rack travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 14.40
Tolerance mm : \pm 0.05

Rated speed rpm : 950
rack travel mm : 14.40
Tolerance mm : \pm 0.10

Rated speed rpm : 750
rack travel mm : 13.90
Tolerance mm : \pm 0.10

Rated speed rpm : 600
rack travel mm : 13.40
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1150
Pressure hPa : 1500
rack travel mm : 14.40
Tolerance mm : \pm 0.05

Rated speed rpm : 1150
Pressure hPa : -
rack travel mm : 10.40
Tolerance mm : \pm 0.15

MEASUREMENT

Rated speed rpm : 1150

Pressure hPa : 1050
rack travel mm : 13.60
Tolerance mm : \pm 0.05

Pressure hPa : 450
rack travel mm : 11.30
Tolerance mm : \pm 0.10

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 270

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 290.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : 1500
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 283.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 134.0
Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : +- 4.0

STARTING FUEL DELIVERY

Set starting CRT at K-cam.

Rated speed rpm : 100
rack travel mm : 13.60
Tolerance mm : +- 0.20
Del. quantity
cm³/1000 strokes : 155.0
Tolerance
cm³/1000 strokes : +- 15.0
Check tolerance
cm³/1000S. : +- 19.0

LOW IDLE

Rated speed rpm : 350
Rack travel in mm : 6.00
Tolerance mm : +- 0.10
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.09.95
Test oil : ISO 4113

Combination No. : 0 402 746 960

Injection pump
Pump designation : PES6P120A720RS7292
: -1
EP type number : 0 412 726 939

Governor
Governor design. : RQV350...1150PA1104
: -1K
Governor no. : 0 421 815 371

Cust. part No. : 0250741302

Customer-spec. information
Customer : MB-NFZ
Motor : OM366LA
Power KW : 157.0

TEST BENCH REQUIREMENTS

Inlet Line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 100
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5

M03

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 3.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 14.40
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 280.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 350

Rack travel in mm : 6.00
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 13.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1206
guide sleeve
travel mm : 9.35
Tolerance mm : \pm 0.15

Rated speed rpm : 350
guide sleeve
travel mm : 1.53
Tolerance mm : \pm 0.20

Rated speed rpm : 855
guide sleeve
travel mm : 5.56
Tolerance mm : \pm 0.25

Rated speed rpm : 540
guide sleeve
travel mm : 3.09
Tolerance mm : \pm 0.25

Rated speed rpm : 1480
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1331

Rack travel in mm : 13.40
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 280.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 109.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 13.40
Rated speed rpm : 1195
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1305
Tolerance 1/min : \pm 15

rack travel mm : 0.70
Tolerance mm : \pm 0.70
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 65.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 250
CRT mm min. : $>$ 6.88

Testing:

Rated speed rpm : 350
rack travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 14.40
Tolerance mm : \pm 0.05

Rated speed rpm : 950
rack travel mm : 14.25
Tolerance mm : \pm 0.10

Rated speed rpm : 750
rack travel mm : 13.70
Tolerance mm : \pm 0.10

Rated speed rpm : 600
rack travel mm : 13.20
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1150
Pressure hPa : 1500
rack travel mm : 14.40
Tolerance mm : \pm 0.05

Rated speed rpm : 1150
Pressure hPa : -
rack travel mm : 10.50
Tolerance mm : \pm 0.15

MEASUREMENT

Rated speed rpm : 1150

Pressure hPa : 1050
rack travel mm : 13.70
Tolerance mm : \pm 0.05

Pressure hPa : 400
rack travel mm : 11.30
Tolerance mm : \pm 0.15

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 270

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 285.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : 1500
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 277.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 143.0

Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

STARTING FUEL DELIVERY

Set starting CRT at K-cam.

Rated speed rpm : 100
rack travel mm : 13.80
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 175.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 350
Rack travel in mm : 6.00
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.09.95
Test oil : ISO 4113

Combination No. : 0 402 746 961

Injection pump
Pump designation : PES6P120A720RS7292
: -1
EP type number : 0 412 726 939

Governor
Governor design. : RQV350...1150PA1104
: -2K
Governor no. : 0 421 815 372

Cust. part No. : 0250741202

Customer-spec. information
Customer : MB-NFZ
Motor : OM366LA
Power KW : 142.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 100
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5

M07

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 3.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 14.50
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 277.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 350

Rack travel in mm : 6.00
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 13.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1206
guide sleeve
travel mm : 9.35
Tolerance mm : \pm 0.15

Rated speed rpm : 350
guide sleeve
travel mm : 1.53
Tolerance mm : \pm 0.20

Rated speed rpm : 855
guide sleeve
travel mm : 5.56
Tolerance mm : \pm 0.25

Rated speed rpm : 540
guide sleeve
travel mm : 3.09
Tolerance mm : \pm 0.25

Rated speed rpm : 1480
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1331

Rack travel in mm : 13.50
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 277.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 108.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 13.50
Rated speed rpm : 1195
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1305
Tolerance 1/min : \pm 15

rack travel mm : 0.70
Tolerance mm : \pm 0.70
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 70.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 250
CRT mm min. : > 7.00

Testing:

Rated speed rpm : 350
rack travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 14.50
Tolerance mm : \pm 0.05

Rated speed rpm : 950
rack travel mm : 14.30
Tolerance mm : \pm 0.10

Rated speed rpm : 750
rack travel mm : 13.70
Tolerance mm : \pm 0.10

Rated speed rpm : 600
rack travel mm : 13.30
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1150
Pressure hPa : 1500
rack travel mm : 14.50
Tolerance mm : \pm 0.05

Rated speed rpm : 1150
Pressure hPa : -
rack travel mm : 10.90
Tolerance mm : \pm 0.15

MEASUREMENT

Rated speed rpm : 1150

Pressure hPa : 850
rack travel mm : 13.90
Tolerance mm : \pm 0.05

Pressure hPa : 350
rack travel mm : 11.50
Tolerance mm : \pm 0.20

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 270

Check
speed 1/min : > 80
Check
speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 281.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : 1500
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 275.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 155.0

Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

STARTING FUEL DELIVERY

Set starting CRT at K-cam.

Rated speed rpm : 100
rack travel mm : 13.90
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 170.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 350
Rack travel in mm : 6.00
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.09.95
Test oil : ISO 4113

Combination No. : 0 402 746 962

Injection pump
Pump designation : PES6P120A720RS7292
: -1
EP type number : 0 412 726 939

Governor
Governor design. : RQV350...1150PA1104
: -3K
Governor no. : 0 421 815 373

Cust. part No. : 0250741102

Customer-spec. information
Customer : MB-NFZ
Motor : OM366LA
Power KW : 127.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 100
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5

M11

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 3.30
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 14.20

Tolerance mm	: ± 0.05
<hr/>	
Del. quantity cm ³ /1000 strokes	: 271.0
<hr/>	
Tolerance cm ³ /1000 strokes	: ± 1.0
<hr/>	
Check tolerance cm ³ /1000S.	: ± 4.0
<hr/>	
Spread	
<hr/>	
Tolerance cm ³ /1000 strokes	: 8.0
<hr/>	
Check tolerance cm ³ /1000S.	: 12.0
<hr/>	

Rated speed rpm	: 350
Rack travel in mm	: 6.00
Tolerance mm	: ± 0.10
Del. quantity cm ³ /1000 strokes	: 13.0
Tolerance cm ³ /1000 strokes	: ± 3.0
Check tolerance cm ³ /1000S.	: ± 6.0
Spread	
Tolerance cm ³ /1000 strokes	: 4.0
Check tolerance cm ³ /1000S.	: 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1205
guide sleeve travel mm	: 9.35
Tolerance mm	: ± 0.15
<hr/>	
Rated speed rpm	: 350
guide sleeve travel mm	: 1.53
Tolerance mm	: ± 0.20
<hr/>	
Rated speed rpm	: 855
guide sleeve travel mm	: 5.56
Tolerance mm	: ± 0.25
<hr/>	
Rated speed rpm	: 540

guide sleeve travel mm	: 3.09
Tolerance mm	: ± 0.25
<hr/>	
Rated speed rpm	: 1480
guide sleeve travel mm	: 13.50
Tolerance mm	: ± 0.50

GUIDE SLEEVE POSITION

control lever position degree	: - 1
Rated speed rpm	: 1329
<hr/>	
Rack travel in mm	: 13.20
Tolerance mm	: ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1150
Aneroid pressure hPa	: 1500
Del. quantity cm ³ /1000 strokes	: 271.0
Tolerance cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000S.	: ± 4.0
Spread	
Tolerance cm ³ /1000 strokes	: 8.0
Check tolerance cm ³ /1000S.	: 12.0

CONTROL LEVER

control lever position degree	: 109.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 13.20
Rated speed rpm	: 1195
Tolerance 1/min	: ± 5
<hr/>	
rack travel mm	: 4.00
Rated speed rpm	: 1300
Tolerance 1/min	: ± 15
<hr/>	
rack travel mm	: 0.70
Tolerance mm	: ± 0.70
Rated speed rpm	: 1400

LOW IDLE

control lever
position degree : 65.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 250

CRT mm min. : $>$ 7.00

Testing:

Rated speed rpm : 350
rack travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 14.20
Tolerance mm : \pm 0.05

Rated speed rpm : 950
rack travel mm : 13.80
Tolerance mm : \pm 0.10

Rated speed rpm : 750
rack travel mm : 13.20
Tolerance mm : \pm 0.10

Rated speed rpm : 600
rack travel mm : 12.80
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1150
Pressure hPa : 1500
rack travel mm : 14.20
Tolerance mm : \pm 0.05

Rated speed rpm : 1150
Pressure hPa : -
rack travel mm : 11.00
Tolerance mm : \pm 0.15

MEASUREMENT

Rated speed rpm : 1150

Pressure hPa : 850
rack travel mm : 13.50
Tolerance mm : \pm 0.05

Pressure hPa : 350
rack travel mm : 11.70
Tolerance mm : \pm 0.10

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 270

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 262.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : 1500
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 256.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 166.0
Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : ± 4.0

STARTING FUEL DELIVERY

Set starting CRT at K-cam.

Rated speed rpm : 100
rack travel mm : 13.70
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 158.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 350
Rack travel in mm : 6.00
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.06.97
Test oil : ISO 4113

Combination No. : 0 402 796 041

Injection pump
Pump designation : PES6H110/320RS19
EP type number : 0 412 716 006

Governor
Governor design. : RE36
Governor no. : 0 421 890 374

Cust. part No. : 8192870 P03 v.04/97

Customer-spec. information
Customer : VOLVO-TRUCK
Motor : D7C
Power kW : 228.0

TEST BENCH REQUIREMENTS

Inlet line : 4(EHAB)

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

M15

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 8.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2
 : - 4

Phasing : 0-60-120-180-240
 : -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, U_{act} = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0
Setting point

(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check

tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 660
Uact V : 3.000
Prestroke solenoid
Stroke mm : 5.30
Del. quantity
cm³/1000 strokes : 359.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 11.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : +/- 0.060
Check tolerance
Volt : +/- 0.060
Prestroke solenoid
Stroke mm : 5.30
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : +/- 2.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.08.95
Test oil : ISO 4113
Combination No. : 0 402 846 059
Injection pump
Pump designation : PE6P120A720RS8026
EP type number : 0 412 826 027
Governor
Governor design. : RQV200...950PA1091K
Governor no. : 0 421 815 984

Cust. part No. : 1355081

Customer-spec. information
Customer : SCANIA
Motor : DSC1172

TEST BENCH REQUIREMENTS

Inlet line : 4.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 2.5
Test nozzle holder
assembly : 1 688 901 104
Opening pressure
bar : 251.5
Tolerance bar : ± 1.5
Test Lines : 1 680 750 008
Outside diameter : 6.0
x inside diameter : 2.0

M17

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 3.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50
Start of delivery mark
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700
Rack travel in mm : 12.35
Tolerance mm : ± 0.05
Rated speed rpm : 250
Rack travel in mm : 4.40
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1008
guide sleeve
travel mm : 9.87
Tolerance mm : ± 0.15

Rated speed rpm : 250
guide sleeve
travel mm : 1.26
Tolerance mm : ± 0.20

Rated speed rpm : 800
guide sleeve
travel mm : 6.59
Tolerance mm : ± 0.25

Rated speed rpm : 310
guide sleeve
travel mm : 2.00
Tolerance mm : ± 0.25

Rated speed rpm : 360
guide sleeve
travel mm : 2.45
Tolerance mm : ± 0.25

Rated speed rpm : 520
guide sleeve
travel mm : 3.58
Tolerance mm : ± 0.25

Rated speed rpm : 1200
guide sleeve
travel mm : 13.50
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1

Rated speed rpm : 1060
Rack travel in mm : 12.50
Tolerance mm : ± 1.30

CONTROL LEVER

control lever
position degree : 65.0
tolerance degree : ± 4.0

control lever
position degree : 118.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 12.50
Rated speed rpm : 995
Tolerance 1/min : ± 5
Check
speed 1/min : ± 10

rack travel mm : 4.00
Rated speed rpm : 1075
Tolerance 1/min : ± 15
Check
speed 1/min : ± 20

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1150

LOW IDLE

control lever
position degree : 71.0
tolerance degree : ± 4.0

control lever
position degree : 17.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 150
CRT mm min. : > 5.40

Testing:

Rated speed rpm : 250
rack travel mm : 4.40
Tolerance mm : ± 0.10

Rated speed rpm : 325

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 12.35
Tolerance mm : \pm 0.05

Rated speed rpm : 950
rack travel mm : 13.50
Tolerance mm : \pm 0.10

Rated speed rpm : 300
rack travel mm : 10.75
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 950
Pressure hPa : 1500
rack travel mm : 13.50
Tolerance mm : \pm 0.10

Rated speed rpm : 950
Pressure hPa : -
rack travel mm : 7.00
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 950

Pressure hPa : 520
rack travel mm : 7.80
Tolerance mm : \pm 0.20

Pressure hPa : 800
rack travel mm : 9.85
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 950
Del. quantity
cm³/1000 strokes : 384.0
Tolerance
cm³/1000 strokes : \pm 4.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 189.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

LOW IDLE

Rated speed rpm : 250

Rack travel in mm : 4.40
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Spread
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 19.06.97

Test oil : ISO 4113

Combination No. : 0 403 466 138JA

Injection pump

Pump designation : PES6MW100/120RS1178

EP type number : 0 413 406 160

Governor

Governer design. : RSV350...1250MW2A332

: -4

Governer no. : 0 420 085 220

Cust. part No. : 3921188

Customer-spec. information

Customer : CDC

Motor : 6 CT

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holde assembly

: 1 688 901 017

Opening pressure bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0

Tolerance bar : ± 1.0

Prestroke mm : 3.50

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 14.00

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 14.10

Tolerance mm : ± 0.05

Del. quantity

cm³/1000 strokes : 143.5

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 4.0

Spreed

Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 7.5

Rated speed rpm : 350

Rack travel in mm : 6.80
Tolerance mm : + 0.10

Del. quantity
cm3/1000 strokes : 22.0

Tolerance
cm3/1000 strokes : + 2.0

Check tolerance
cm3/1000S. : + 4.5

Spreed

Tolerance
cm3/1000 strokes : 3.5

Check tolerance
cm3/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : + 0.35

governor spring
pre-tension
click setting x : 5.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 900
Del. quantity
cm3/1000 strokes : 143.5

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 4.0

Spreed

Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 99.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 13.10
Rated speed rpm : 1120
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1255
Tolerance 1/min : + 15

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1400

rack travel mm : 4.00
Rated speed rpm : 1270
Tolerance 1/min : + 15

LOW IDLE

control lever
position degree : 75.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 6.30
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 350
rack travel mm : 6.80
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 490
Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 14.10
Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 14.10
Tolerance mm : + 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.70
Tolerance mm : + 0.10

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 335
rack travel mm : 13.20
Tolerance mm : + 0.20

Pressure hPa : 165
rack travel mm : 11.70
Tolerance mm : + 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 94.5
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

M22

rack travel mm : 20.00
Tolerance mm : + 1.00
Del. quantity
cm³/1000 strokes : 170.0
Tolerance
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000S. : + 15.0

LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 6.80
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

Note remarks

Edition : 19.06.97
Test oil : ISO 4113

Injection pump
Pump designation : PES6A90D410RS2667
EP type number : 0 410 896 C80

Cust. part No. :

Customer : MB-NFZ
Motor : OM 366
Power KW : 100.0

Inlet Line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure : 173.5
bar
Tolerance bar : \pm 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

```
x inside diameter : 3.0
x length mm      : 600
```

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : \pm 1.0

```

Prestroke mm      :      2.30
Tolerance mm      :  $\pm$  0.05
Check
tolerance mm      :  $\pm$  0.10

```

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

```

Phasing      : 0-60-120-180-240
              : -300
Tolerance    : +- 0.50
Check
tolerance *NW : +- 0.75

```

BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 11.15
Tolerance mm : ± 0.05

Del. quantity
cm3/1000 strokes : 64.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000s. : +- 2.5

Spread

Tolerance	
cm3/1000 strokes :	3.0
<hr/>	
Check tolerance	
cm3/1000S. :	4.5
<hr/>	

Rated speed rpm :	300
Rack travel in mm :	9.00
Tolerance mm :	+ 0.10
Del. quantity	
cm3/1000 strokes :	11.0
Tolerance	
cm3/1000 strokes :	+ 2.0
Check tolerance	
cm3/1000S. :	+ 4.0
Speed	
Tolerance	
cm3/1000 strokes :	2.0
Check tolerance	
cm3/1000S. :	4.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm :	1450
guide sleeve	
travel mm :	8.45
Tolerance mm :	+ 0.05

Rated speed rpm :	300
guide sleeve	
travel mm :	1.05
Tolerance mm :	+ 0.25

Rated speed rpm :	600
guide sleeve	
travel mm :	3.20
Tolerance mm :	+ 0.80

Rated speed rpm :	650
guide sleeve	
travel mm :	3.95
Tolerance mm :	+ 0.25

GUIDE SLEEVE POSITION

control lever	
position degree :	4

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	1400
Aneroid pressure	
hPa :	-
Del. quantity	
cm3/1000 strokes :	64.0
Tolerance	
cm3/1000 strokes :	+ 0.5
Check tolerance	
cm3/1000S. :	+ 2.5
Speed	
Tolerance	
cm3/1000 strokes :	3.0
Check tolerance	
cm3/1000S. :	4.5

CONTROL LEVER

control lever	
position degree :	112.0
tolerance degree :	+ 4.0

RATED SPEED

rack travel mm :	10.10
Rated speed rpm :	1445
Tolerance 1/min :	+ 5

rack travel mm :	4.00
Rated speed rpm :	1555
Tolerance 1/min :	+ 15

rack travel mm :	0.50
Tolerance mm :	+ 0.50
Rated speed rpm :	1650

LOW IDLE

control lever	
position degree :	74.0
tolerance degree :	+ 4.0

Setting point w/out bumper spring

Rated speed rpm :	100
-------------------	-----

CRT mm min. :	> 10.30
---------------	---------

Testing:

Rated speed rpm :	300
rack travel mm :	9.00
Tolerance mm :	+ 0.10

Rated speed rpm :	610
-------------------	-----

TORQUE CONTROL

Rated speed rpm : 1400
rack travel mm : 11.15
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 12.30
Tolerance mm : \pm 0.10

Rated speed rpm : 900
rack travel mm : 11.95
Tolerance mm : \pm 0.15

Rated speed rpm : 1100
rack travel mm : 11.55
Tolerance mm : \pm 0.15

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 53.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.5

Aneroid pressure
hPa : -
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 56.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 17.20
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000S. : \pm 8.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 9.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 4.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.06.97
Test oil : ISO 4113

Combination No. : 0 400 866 069

Injection pump
Pump designation : PES6A90D320/3RS2464
EP type number : 0 410 896 029

Governor
Governor design. : RSV300...1000A7C529R
Governor no. : 0 420 233 191

Cust. part No. :

Customer-spec. information
Customer : MWM

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 922 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009_

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

M26

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 10.30
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 68.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000s. : ± 2.5

Speed

Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm3/1000S. : 4.5

Rated speed rpm : 300
Rack travel in mm : 7.50
Tolerance mm : \pm 0.10
Del. quantity
cm3/1000 strokes : 10.0
Tolerance
cm3/1000 strokes : \pm 2.0
Check tolerance
cm3/1000S. : \pm 4.0
Spreed
Tolerance
cm3/1000 strokes : 4.5
Check tolerance
cm3/1000S. : 6.0

(9) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800
Rack travel in mm : 0.65
Tolerance mm : \pm 0.35

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 980
Aneroid pressure
hPa : -
Del. quantity
cm3/1000 strokes : 68.0
Tolerance
cm3/1000 strokes : \pm 0.5
Check tolerance
cm3/1000S. : \pm 2.5
Spreed
Tolerance
cm3/1000 strokes : 3.0
Check tolerance
cm3/1000S. : 4.5

CONTROL LEVER

control lever
position degree : 65.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 9.30
Rated speed rpm : 1025
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1055
Tolerance 1/min : \pm 15

rack travel mm : 1.00
Tolerance mm : \pm 0.70
Rated speed rpm : 1200

rack travel mm : 4.00

LOW IDLE

control lever
position degree : 28.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 300
rack travel mm : 8.00
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 19.50

Testing:

Rated speed rpm : 300
rack travel mm : 7.50
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 430
Tolerance 1/min : \pm 30

Rated speed rpm : 450

CRT mm max. : $<$ 1.00

TORQUE CONTROL

Rated speed rpm : 980
rack travel mm : 10.30
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : > 100

Check
speed 1/min : > 80

STARTING FUEL DELIVERY

Rated speed rpm : 100

rack travel mm : 20.25

Tolerance mm : +- 0.75

Del. quantity
cm³/1000 strokes : 118.0

Tolerance
cm³/1000 strokes : +- 7.5

Check tolerance
cm³/1000S. : +- 10.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 7.50

Tolerance mm : +- 0.10

Del. quantity
cm³/1000 strokes : 10.0

Tolerance
cm³/1000 strokes : +- 2.0

Check tolerance
cm³/1000S. : +- 4.0

Spreed
Tolerance

cm³/1000 strokes : 4.5

Check tolerance
cm³/1000S. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 01.07.97
Test oil : ISO 4113

Combination No. : 0 400 866 207AA

Injection pump
Pump designation :
EP type number :

Governor
Governor design. :
Governor no. :

Cust. part No. : 3921147

Customer-spec. information
Customer : CUMMINS
Motor : & C 8.3

TEST BENCH REQUIREMENTS

Inlet line : 2.

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

NO1

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 28.0
Tolerance bar : ± 1.0

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : 10.00
Tolerance : ± 0.10

Check
tolerance °NW : ± 0.29

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.25
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 132.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm3/1000 strokes : 3.5

Check tolerance
cm3/1000S. : 8.0

Rated speed rpm : 400

Rack travel in mm : 5.60

Tolerance mm : \pm 0.10

Del. quantity
cm3/1000 strokes : 18.0

Tolerance
cm3/1000 strokes : \pm 2.0

Check tolerance
cm3/1000S. : \pm 4.5

Spread
Tolerance
cm3/1000 strokes : 5.5

Check tolerance
cm3/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : -

Del. quantity
cm3/1000 strokes : 132.0

Tolerance
cm3/1000 strokes : \pm 1.0

Check tolerance
cm3/1000S. : \pm 3.0

Spread
Tolerance
cm3/1000 strokes : 3.5

Check tolerance
cm3/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 95.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 12.20
Rated speed rpm : 1065
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1150
Tolerance 1/min : \pm 5

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1350

rack travel mm : 4.00
Rated speed rpm : 1150
Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 78.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 5.10
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 400
rack travel mm : 5.60
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 500
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 13.25
Tolerance mm : \pm 0.05

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 400
Rack travel in mm : 5.60
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 01.07.97
Test oil : ISO 4113

Combination No. : 0 400 866 208AI

Injection pump
Pump designation :
EP type number :

Governor
Governor design. :
Governor no. :

Cust. part No. : 3921142

Customer-spec. information
Customer : CUMMINS

TEST BENCH REQUIREMENTS

Inlet line : 2.

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 100

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

N04

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

°NW after s.o.d. : 10.00
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.29

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.15
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 120.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.5

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance cm ³ /1000S.	:	6.5
--	---	-----

Rated speed rpm	:	400
-----------------	---	-----

Rack travel in mm	:	5.70
Tolerance mm	:	± 0.10

Del. quantity cm ³ /1000 strokes	:	17.0
--	---	------

Tolerance cm ³ /1000 strokes	:	± 2.0
--	---	-------

Check tolerance cm ³ /1000S.	:	± 4.5
--	---	-------

Spread Tolerance cm ³ /1000 strokes	:	6.0
--	---	-----

Check tolerance cm ³ /1000S.	:	8.0
--	---	-----

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	:	FREE
Rated speed rpm	:	800

Rack travel in mm	:	0.50
Tolerance mm	:	± 0.20

governor spring pre-tension click setting x	:	2.00
---	---	------

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	1000
Aneroid pressure hPa	:	-

Del. quantity cm ³ /1000 strokes	:	120.0
--	---	-------

Tolerance cm ³ /1000 strokes	:	± 1.0
--	---	-------

Check tolerance cm ³ /1000S.	:	± 3.5
--	---	-------

Spread Tolerance cm ³ /1000 strokes	:	4.0
--	---	-----

Check tolerance cm ³ /1000S.	:	6.5
--	---	-----

NOS

CONTROL LEVER

control lever position degree	:	87.0
tolerance degree	:	± 4.0

RATED SPEED rack travel mm	:	11.10
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Rated speed rpm	:	1065
Tolerance 1/min	:	± 5

rack travel mm	:	4.00
Rated speed rpm	:	1090

Tolerance 1/min	:	± 5
-----------------	---	-----

rack travel mm	:	0.85
Tolerance mm	:	± 0.55

Rated speed rpm	:	1300
-----------------	---	------

rack travel mm	:	4.00
Rated speed rpm	:	1090

Tolerance 1/min	:	± 15
-----------------	---	------

LOW IDLE

control lever position degree	:	69.0
tolerance degree	:	± 4.0

Setting point w/out bumper spring

Rated speed rpm	:	400
rack travel mm	:	5.20

Tolerance mm	:	± 0.10
--------------	---	--------

Testing:

Rated speed rpm	:	400
rack travel mm	:	5.70

Tolerance mm	:	± 0.10
--------------	---	--------

rack travel mm	:	2.00
Rated speed rpm	:	450

Tolerance 1/min	:	± 30
-----------------	---	------

TORQUE CONTROL

Rated speed rpm	:	1000
rack travel mm	:	12.15

Tolerance mm	:	± 0.05
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STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 400

Rack travel in mm : 5.70
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 01.07.97
Test oil : ISO 4113

Combination No. : C 400 866 203AJ

Injection pump
Pump designation :
EP type number :

Governor
Governor design. :
Governor no. :

Cust. part No. : 3927149

Customer-spec. information
Customer : CUMMINS

TEST BENCH REQUIREMENTS

Inlet line : 2.

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holde
assembly : 1 688 901 100

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

N07

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : 10.00
Tolerance : ± 0.10
Check
tolerance *NW : ± 0.29

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.15
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 120.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.5

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rated speed rpm : 400

Rack travel in mm : 5.70

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 17.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Spreed
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 120.0
Tolerance

cm³/1000 strokes : + 1.0
Check tolerance

cm³/1000S. : + 3.5
Spreed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 87.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 11.10
Rated speed rpm : 1065
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1090
Tolerance 1/min : + 5

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1300

rack travel mm : 4.00
Rated speed rpm : 1090
Tolerance 1/min : + 15

LOW IDLE

control lever
position degree : 69.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 5.20
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 400
rack travel mm : 5.70
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 450
Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.15
Tolerance mm : + 0.05

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 400

Rack travel in mm : 5.70
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.06.97
Test oil : ISO 4113

Combination No. : 0 400 866 222

Injection pump
Pump designation : PES6A95D410/3RS2907
EP type number : 0 410 896 884

Governor
Governor design. : RSV325...1250A5C950L
Governor no. : 0 420 232 641

Cust. part No. : 0423 1601 KY

Customer-spec. information
Customer : KHD-DMI
Motor : F6L912/913_NEU
Power KW : 81.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 76.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 8.50
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 11.5

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Speed
Tolerance
cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 76.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance

cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 107.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 10.35
Rated speed rpm : 1295
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1355
Tolerance 1/min : ± 15

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1550

rack travel mm : 4.00
Rated speed rpm : 1400
Tolerance 1/min : ± 15

LOW IDLE

control lever
position degree : 73.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 8.00
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 325
rack travel mm : 8.50
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 595
Tolerance 1/min : ± 30

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 11.35
Tolerance mm : \pm 0.05

Rated speed rpm : 500

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 130.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 8.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 11.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.06.97

Test oil : ISO 4113

Combination No. : 0 400 866 235

Injection pump

Pump designation : PES6A95D410/3RS2907

EP type number : 0 410 896 884

Governor

Governer design. : RSV325...1250A5C951L

Governer no. : 0 420 232 642

Cust. part No. : 0423 2334 KY

Customer-spec. information

Customer : KHD-DMI

Motor : F6L913

Power KW : 89.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly

: 0 681 343 009

Opening pressure
bar

: 173.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.00

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.35

Tolerance mm : ± 0.05

Del. quantity

cm³/1000 strokes : 76.0

Tolerance

cm³/1000 strokes : ± 1.0

Check tolerance

cm³/1000s. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 8.50

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 11.5

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Spread
Tolerance
cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 76.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 107.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 10.35
Rated speed rpm : 1295
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1355
Tolerance 1/min : + 15

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1550

rack travel mm : 4.00
Rated speed rpm : 1400
Tolerance 1/min : + 15

LOW IDLE

control lever
position degree : 73.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 8.00
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 325
rack travel mm : 8.50
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 595
Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 11.35
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 11.80
Tolerance mm : \pm 0.10

End of test specification sheet

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 70.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 17.00
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 8.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 11.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.06.97
Test oil : ISO 4113
Combination No. : 0 400 876 109
Injection pump
Pump designation : PES6A80D41ORS2085X
EP type number : 0 410 886 045
Governor
Governor design. : RSV350...1300A2C1005
: L
Governor no. : 0 420 232 405
Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM352
Power KW : 62.0

TEST BENCH REQUIREMENTS

Inlet line : 1.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holde
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

N16

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1300
Rack travel in mm : 8.05
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 39.5
Tolerance
cm³/1000 strokes : ± 0.5
Check tolerance
cm³/1000S. : ± 2.0
Speed

Tolerance
cm3/1000 strokes : 2.0

Check tolerance
cm3/1000S. : 3.5

Rated speed rpm : 350

Del. quantity
cm3/1000 strokes : 11.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 2.5

Spread
Tolerance

cm3/1000 strokes : 2.0

Check tolerance
cm3/1000S. : 3.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : + 0.35

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300

Aneroid pressure
hPa : -

Del. quantity
cm3/1000 strokes : 39.5

Tolerance
cm3/1000 strokes : + 0.5

Check tolerance
cm3/1000S. : + 2.0

Spread
Tolerance

cm3/1000 strokes : 2.0

Check tolerance
cm3/1000S. : 3.5

CONTROL LEVER

control lever
position degree : 106.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 1.00
Tolerance mm : + 0.70
Rated speed rpm : 1575

rack travel mm : 4.00
Rated speed rpm : 1420
Tolerance 1/min : + 15

ASSEMBLY GOVERNOR SETTING

rack travel mm : 8.00

rack travel mm : 8.00

rack travel mm : 8.00

rack travel mm : 8.00

rack travel mm : 8.00

rack travel mm : 8.00

LOW IDLE

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 6.90
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 17.50

Testing:

rack travel mm : 2.00
Rated speed rpm : 620
Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 8.05

Tolerance mm : \pm 0.05

Rated speed rpm : 500

rack travel mm : 9.35

Tolerance mm : \pm 0.05

Rated speed rpm : 700

rack travel mm : 9.30

Tolerance mm : \pm 0.10

Rated speed rpm : 950

rack travel mm : 8.45

Tolerance mm : \pm 0.15

Check tolerance

cm³/1000S. : 3.5

End of test specification sheet

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -

Rated speed rpm : 500

Del. quantity

cm³/1000 strokes : 38.5

Tolerance

cm³/1000 strokes : \pm 1.0

Check tolerance

cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

rack travel mm : 14.70

Tolerance mm : \pm 0.20

Del. quantity

cm³/1000 strokes : 83.0

Tolerance

cm³/1000 strokes : \pm 5.0

Check tolerance

cm³/1000S. : \pm 8.0

LOW IDLE

Rated speed rpm : 350

Del. quantity

cm³/1000 strokes : 11.0

Tolerance

cm³/1000 strokes : \pm 1.0

Check tolerance

cm³/1000S. : \pm 2.5

Speed

Tolerance

cm³/1000 strokes : 2.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.06.97
Test oil : ISO 4113
Combination No. : 0 400 876 310
Injection pump
Pump designation : PES6A90D410RS2596
EP type number : 0 410 896 073
Governor
Governor design. : RSV350...1200A0C1148
: -1L
Governor no. : 0 420 232 456
Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM352A
Power KW : 110.0

TEST BENCH REQUIREMENTS

Inlet line : 1.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : C-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1180
Rack travel in mm : 12.15
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 73.5
Tolerance
cm³/1000 strokes : ± 0.5
Check tolerance
cm³/1000S. : ± 2.5
Spreed

Tolerance
cm3/1000 strokes : 3.0

Check tolerance
cm3/1000S. : 5.0

Rated speed rpm : 350
Del. quantity
cm3/1000 strokes : 14.0
Tolerance
cm3/1000 strokes : \pm 2.0
Check tolerance
cm3/1000S. : \pm 4.0
Spreed
Tolerance
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 4.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1180
Aneroid pressure
hPa : 900
Del. quantity
cm3/1000 strokes : 73.5
Tolerance
cm3/1000 strokes : \pm 0.5
Check tolerance
cm3/1000S. : \pm 2.5
Spreed
Tolerance
cm3/1000 strokes : 3.0
Check tolerance
cm3/1000S. : 5.0

CONTROL LEVER

control lever
position degree : 111.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1460

rack travel mm : 4.00
Rated speed rpm : 1360
Tolerance 1/min : \pm 15

LOW IDLE

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 8.50
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 19.50

Testing:

rack travel mm : 2.00
Rated speed rpm : 510
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1180
rack travel mm : 12.15
Tolerance mm : \pm 0.05

Rated speed rpm : 725
rack travel mm : 13.65
Tolerance mm : \pm 0.05

Rated speed rpm : 900
rack travel mm : 13.10
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 13.65
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 11.55
Tolerance mm : \pm 0.05

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 235
rack travel mm : 12.10
Tolerance mm : \pm 0.10

Pressure hPa : 450
rack travel mm : 12.65
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 725
Del. quantity
cm³/1000 strokes : 81.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.5

Aneroid pressure
hPa : 900
Rated speed rpm : 850
Del. quantity
cm³/1000 strokes : 76.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Check tolerance
cm³/1000S. : 5.5

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 52.0
Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 16.20
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000S. : \pm 8.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 14.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 4.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.06.97
Test oil : ISO 4113

Combination No. : 0 400 876 397

Injection pump
Pump designation : PES6A95D41ORS2797
EP type number : 0 410 896 900

Governor
Governor design. : RSV350...1400AOC2006
 : -8L
Governor no. : 0 420 232 580

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM 366
Power KW : 100.0

TEST BENCH REQUIREMENTS

Inlet line : 2.3

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
 : 4

Phasing : 0-60-120-180-240
 : -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1380

Rack travel in mm : 10.15
Tolerance mm : ± 0.05

Del. quantity
cm3/1000 strokes : 62.0

Tolerance
cm3/1000 strokes : ± 1.0

Check tolerance
cm3/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 350

Rack travel in mm : 8.10
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 8.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Speed

Tolerance
cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : ± 0.35

governor spring
pre-tension
click setting x : 4.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1380
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 62.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 111.0
tolerance degree : ± 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1430
rack travel mm : 9.10

Rated speed rpm : 1496
Tolerance 1/min : ± 6
rack travel mm : 4.00

rack travel mm : 1.00
Tolerance mm : ± 0.70
Rated speed rpm : 1650

Rated speed rpm : 1431
rack travel mm : 9.10

Rated speed rpm : 1497
Tolerance 1/min : ± 6
rack travel mm : 4.00

rack travel mm : 1.00
Tolerance mm : ± 0.70
Rated speed rpm : 1650

Rated speed rpm : 1432
rack travel mm : 9.10

Rated speed rpm : 1498
Tolerance 1/min : ± 6
rack travel mm : 4.00

rack travel mm : 1.00
Tolerance mm : ± 0.70
Rated speed rpm : 1650

Rated speed rpm : 1433
rack travel mm : 9.10

Rated speed rpm : 1499
Tolerance 1/min : ± 6
rack travel mm : 4.00

rack travel mm : 1.00

Tolerance mm : \pm 0.70
Rated speed rpm : 1650

Rated speed rpm : 1434
rack travel mm : 9.10

Rated speed rpm : 1500
Tolerance 1/min : \pm 6
rack travel mm : 4.00

rack travel mm : 1.00
Tolerance mm : \pm 0.70
Rated speed rpm : 1650

Rated speed rpm : 1435
rack travel mm : 9.10

Rated speed rpm : 1501
Tolerance 1/min : \pm 6
rack travel mm : 4.00

rack travel mm : 1.00
Tolerance mm : \pm 0.70
Rated speed rpm : 1650

LOW IDLE

control lever
position degree : 78.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : $>$ 19.50

Testing:

Rated speed rpm : 350
rack travel mm : 8.10
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 510
Tolerance 1/min : \pm 30

SET IDLE AUXILIARY SPRING

Rated speed rpm : 100

TORQUE CONTROL

Rated speed rpm : 1380
rack travel mm : 10.15
Tolerance mm : \pm 0.05

Rated speed rpm : 400
rack travel mm : 11.45
Tolerance mm : \pm 0.15

Rated speed rpm : 630
rack travel mm : 11.05
Tolerance mm : \pm 0.15

Rated speed rpm : 925
rack travel mm : 10.55
Tolerance mm : \pm 0.15

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 50.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 630
Del. quantity
cm³/1000 strokes : 51.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 925
Del. quantity
cm³/1000 strokes : 59.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 14.80
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 83.0

Tolerance
cm³/1000 strokes : ± 7.5
Check tolerance
cm³/1000S. : ± 10.0

LOW IDLE

Rated speed rpm : 350
Rack travel in mm : 8.10
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 8.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.06.97

Test oil : ISO 4113

Combination No. : F 002 A02 053

Injection pump

Pump designation : PES6A95D320/3RS2916

EP type number : F 002 A10 010

Governor

Governor design. : RSV475...1050ADC933R

Governor no. : F 002 A20 239

Cust. part No. : 3283920

Customer-spec. information

Customer : CUMMINS

Motor : 6BT

Power KW : 107.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0

Test nozzle holder assembly

: 1 688 901 101

Opening pressure bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0

Tolerance bar : ± 1.0

Prestroke mm : 2.85

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 7.00

Tolerance : ± 0.10

Check

tolerance °NW : ± 0.29

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.20

Tolerance mm : ± 0.05

Del. quantity cm ³ /1000 strokes	: 104.8
Tolerance cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000S.	: ± 3.0
Speed	
Tolerance cm ³ /1000 strokes	: 4.0
Check tolerance cm ³ /1000S.	: 6.5

Rated speed rpm	: 475
Rack travel in mm	: 5.40
Tolerance mm	: ± 0.10
Del. quantity cm ³ /1000 strokes	: 18.8
Tolerance cm ³ /1000 strokes	: ± 2.0
Check tolerance cm ³ /1000S.	: ± 4.5
Speed	
Tolerance cm ³ /1000 strokes	: 6.0
Check tolerance cm ³ /1000S.	: 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	: FREE
Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	: ± 0.20
governor spring pre-tension click setting x	: 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1050
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N27

Aneroid pressure hPa	: 800
Del. quantity cm ³ /1000 strokes	: 104.8
Tolerance cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000S.	: ± 3.0
Speed	
Tolerance cm ³ /1000 strokes	: 4.0
Check tolerance cm ³ /1000S.	: 6.5

CONTROL LEVER

control lever position degree	: 104.0
tolerance degree	: ± 4.0

RATED SPEED	
rack travel mm	: 11.20
Rated speed rpm	: 1110
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1200
Tolerance 1/min	: ± 5

rack travel mm	: 0.85
Tolerance mm	: ± 0.55
Rated speed rpm	: 1300

rack travel mm	: 4.00
Rated speed rpm	: 1200
Tolerance 1/min	: ± 15

LOW IDLE

control lever position degree	: 85.0
tolerance degree	: ± 4.0

Control lever difference Grad	: 19.0
tolerance degree	: ± 6.0

Setting point w/out bumper spring

Rated speed rpm	: 475
rack travel mm	: 4.90
Tolerance mm	: ± 0.10

Rated speed rpm	: 100
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CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475
rack travel mm : 5.40
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 580
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.20
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 12.60
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 800

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.15
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 700
rack travel mm : 12.10
Tolerance mm : \pm 0.20

Pressure hPa : 560
rack travel mm : 11.60
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 800
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 112.0

Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 79.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 120.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 475
Rack travel in mm : 5.40
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 18.8
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet